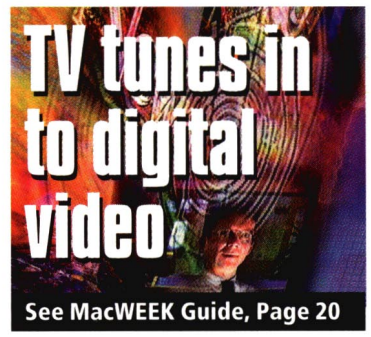
MacWEEK

06.03.96 | *The Newsweekly for Macintosh Managers* | VOLUME 10 NUMBER 22



Corel to duel MS Office with Java-based suite

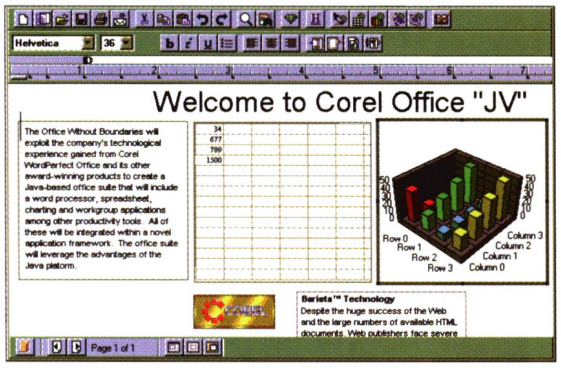
By James Staten

Corel Corp. made several Java-related announcements at last week's JavaOne Conference in San Francisco that it hopes will give it the upper hand in the productivity software battle with Microsoft Office and ClarisWorks.

The company unveiled a version of its Corel Office suite built entirely in Sun Microsystems Inc.'s Java programming language and a set of APIs that will let applications output Java-based portable documents.

Corel Office JV will be a Java-based integrated application based

See Corel, Page 76


Welcome to Corel Office "JV"
The Office Without Boundaries will exploit the company's technological experience gained from Corel WordPerfect Office and its other award-winning products to create a Java-based office suite that will include a word processor, spreadsheet, charting and workgroup applications among other productivity tools. All of these will be integrated within a novel application framework. The office suite will leverage the advantages of the Java platform.
Barista™ Technology
Despite the huge success of the Web and the large numbers of available HTML documents, Web publishers face severe
Page 1 of 1

Corel's Office JV will be written entirely in Java (shown here on Windows) and feature the familiar WordPerfect interface with a frames metaphor, à la ClarisWorks.

Kodak's consumer focus

Alliance to push FlashPix format

By Rebecca Gulick

At this week's Comdex/Spring '96 in Chicago, a consortium of industry players hope to popularize image editing with consumers. Sources said Eastman Kodak Co., Microsoft Corp., Live Picture Inc. and Hewlett-Packard Co. will announce FlashPix, a new technology that aims to broaden the appeal of digital imaging.

The collaborators will reportedly have early supporters in Apple, Canon U.S.A. Inc., Fuji Photo Film USA Inc., IBM Corp., Intel Corp., Macromedia Inc., PictureWorks Technology Inc. and Storm Technologies.

Begun in 1994 under the code name NIFty, the format will let users manipulate high-quality images as easily as low-resolution

See FlashPix, Page 74

Digital camera less than $350

By Kelly Ryer

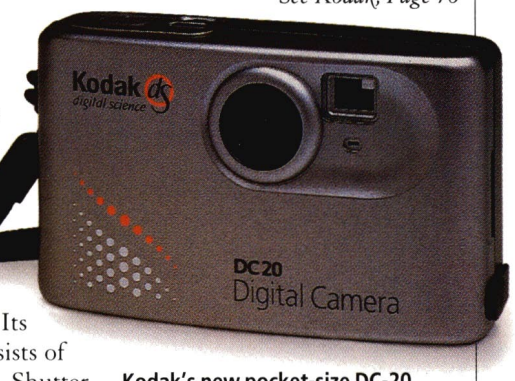
Kodak may be a family name in photography, but until now its digital camera offerings required fairly deep pockets. With a price less than $350, the company's new DC-20 camera may change all that.

Slated for introduction this week at Comdex/Spring '96 in Chicago, Eastman Kodak Co.'s DC-20 closely resembles a traditional point-and-shoot camera. Measuring 4 by 2.5 inches, it weighs just 4.2 ounces. Its scant user interface consists of three buttons: On/Off, Shutter and Erase All.

"Cost is a priority for people in this segment," said Kristy Holch, principal at InfoTrends Research Group Inc. of Plymouth, Mass. "There aren't as many bells and whistles, but the theory is that the consumers don't want them," she said.

Depending on lighting conditions, the DC-20 has equivalent ISO ratings of 800 or 1,600; shutter speeds vary from 1/30 to 1/4,000 of a second. The camera

See Kodak, Page 76



Kodak's new pocket-size DC-20 weighs just 4.2 ounces without batteries and can store up to 16 photos.

Amelio names names for new Apple divisions

Buckley out as U.S. sales boss

By Stephen Howard and Joanna Pearlstein

Apple CEO Gilbert Amelio was two days early in delivering his promised reorganization. Last week, he shifted corporate structures and executives in a shake-up that gave profit-and-loss control to several new operating groups and triggered the resignation of the sales chief for North and South America.

Amelio had sketched the outlines of his plan in mid-May and set an end-of-the-month deadline for himself (see 05.20.96, Page 1). While the broad strokes of the reorganization are done, Apple said additional executives would be named soon.

The chief beneficiary of the changes is Marco Landi, the newly appointed chief operating officer who controls virtually all of the company's revenue-generating activities.

"Landi is the golden boy now," said Pieter Hartsook, editor of the Hartsook Letter, a Mac industry newsletter in Alameda, Calif.

Reporting to Landi are five main product groups — Macin-

See Apple, Page 74

Help, configuration tools get make-over in Mac OS 8

By Clifford Colby

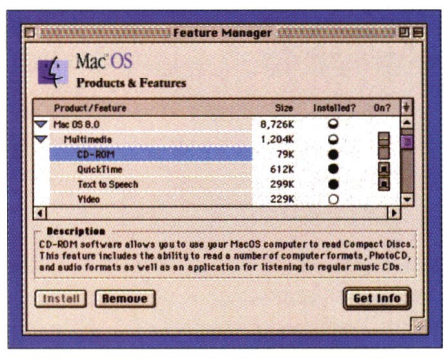
Apple this spring offered glimpses of how it will take the mystery out of dealing with Mac OS 8, code-named Copland. With an increasing jumble of components and new features threatening to overwhelm users and technical support, Apple will beef up the new OS' built-in agent and help technologies.

According to online documents as well as in presentations at the recent Apple Worldwide Developers Conference in San Jose, Calif., Mac OS 8 will offer agents that will carry out tasks, context-sensitive assistance and tools that will help users make sense of the System folder.

The OS will come with what Apple is calling Experts, which will move the help system from the current show-me nature of Apple Guides to a do-it-for-me capability. Experts will step a user through an interview and, based on the user's responses, execute tasks.

Users will also be able

See Help, Page 77



Mac OS 8's Feature Manager will give users an organized view of the System folder's contents.

Truevision card to use M-JPEG with Bravado

By Kelly Ryer

Truevision Inc. staked a claim on the low-end digital video market last week with its $1,095 Bravado 1000 Motion-JPEG card for PCI Macintoshes.

Due in late July, the Mac version of the Bravado 1000 nonlinear editing system will ship with a full version of Adobe Systems Inc.'s video-editing program, Premiere 4.2. An Intel-based PC version of Bravado has been shipping since March.

According to the company, the new board will use a variable-bit-rate M-JPEG compressor-decompressor from Zoran Corp. that yields data transfer rates of 1 to 3 Mbytes per second.

The board will lack audio support, so users will have to rely upon

See Truevision, Page 76

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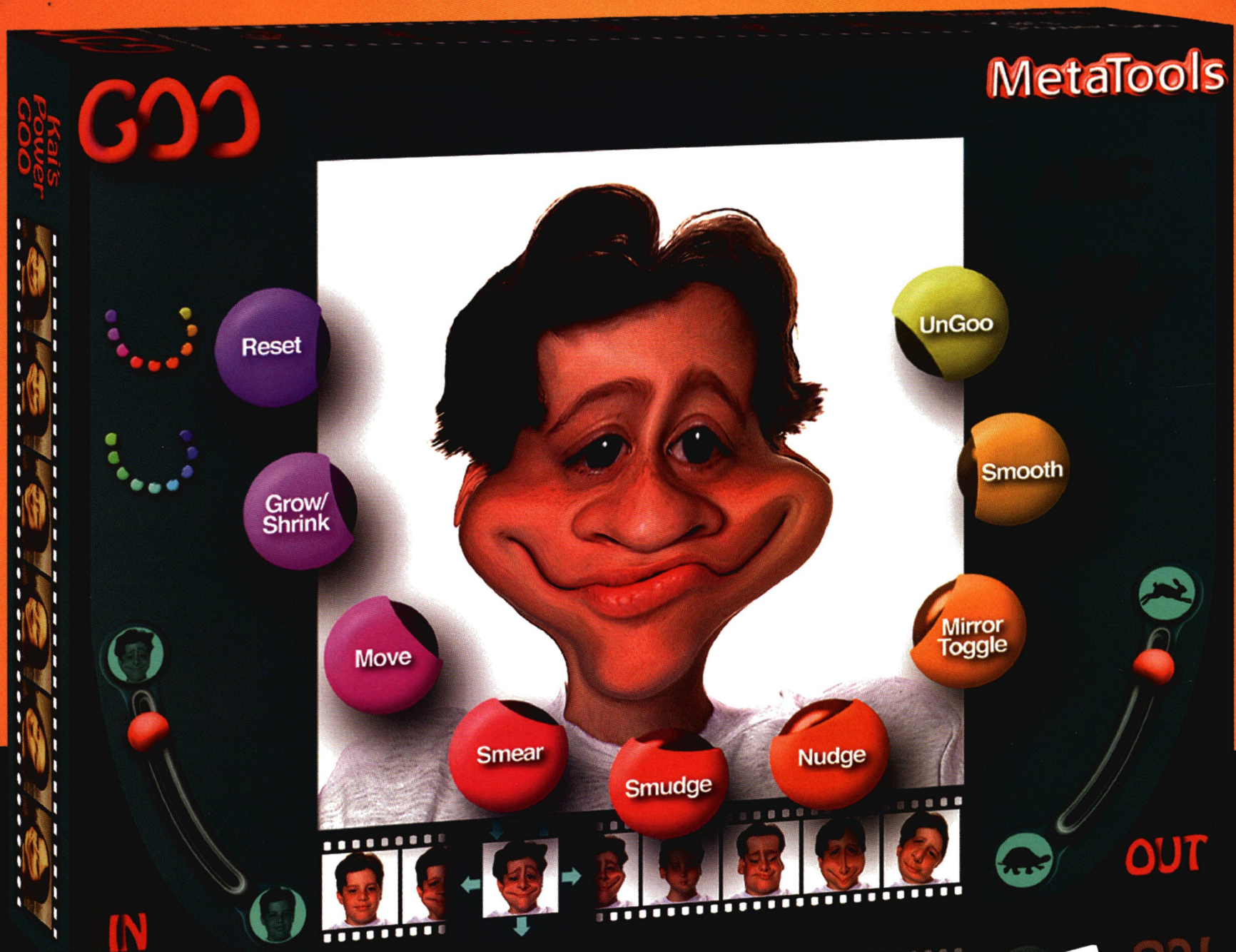

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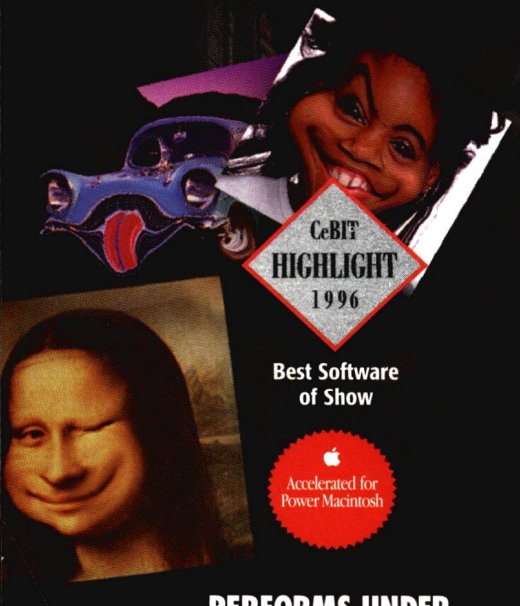

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MacWEEK's Guide to Digital Video looks at how Macs save time and money in TV studios.

How do the storage options stack up for service bureaus? See Solutions, Page 37.

Bryce 2.0 creates great results, but the trip through landscape generation can be rough. See Reviews, Page 32.

Picture this: French vendor Orkis will bring its cross-platform ImageBase-Pro to the U.S. this summer. See GA, Page 8.

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UMAX SuperMac S900L is appealing high-end clone, offering flexibility and compatibility • In Brief: Changes ease data entry in Attain's In Control 4.0.3; MetaTools' Bryce 2.0 is still powerful but frustrating

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These days, service bureaus need to have a variety of removable-storage media to support their customers' ongoing demands.

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MACWEEK INSIDER DAVID MORGENSTERN

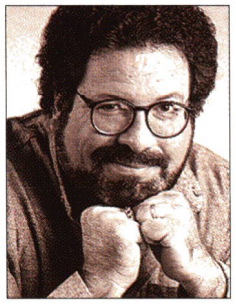
The storage decision

It's the razor blades, stupid! This is the longtime maxim of the supplies business. You sell a printer or removable-media drive on the cheap and make up the profit in the consumable.

The downside of this strategy, for users, was made clear to me last weekend while prowling through the back shelves of the local drug superstore. I was searching for razor blades.

Not just any blade would do, of course. I needed a refill for a particular swiveling, dual-redundant bladed razor. I discovered that the item in question is no longer available.

This problem is not terrifying, since I sport a beard and merely trim here and there, but I'm feeling the occasional pinch from my ancient double-edge safety razor. However, I know I'm going to have to make a choice on an updated shaving delivery system.



Nowadays, users must make similar hard choices for storage. But unlike the lowly razor, data can't tolerate nicks as facilely as skin, and the cost of storage refills is orders of magnitude greater.

For example, SyQuest Technology Inc. this week takes the wraps off its new entry-level drive, the EZFlyer 230MB (see story, Page 4). The company said the drive has been redesigned from the ground up, and it certainly has a much different look than the traditional, staid SyQuest enclosure. Perhaps it even designed in a profit margin this time.

The company is betting that the higher 230-Mbyte capacity and performance will draw users away from Iomega Corp.'s 100-Mbyte Zip. Even though the EZFlyer drive costs about $100 more, SyQuest is offering the blades, er, cartridges, at a comparable price to Zip cartridges in shrink-wrapped packs.

SyQuest is also hoping that the new product will help turn its bottom line from red ink to black, just as the Zip has worked miracles for Iomega's once desperate financial situation.

In the past, users thought of the storage market as an ever-increasing linear progression: Capacity and performance go up, and prices comes down. This trend was not just for hard drives; SyQuest applied this strategy to its own lines of extremely popular products, although maybe not so much on the price side.

Users need to follow the business as well as the technological side of storage.

In addition, in the bygone days (a few years back) there were fewer choices for Macintosh storage. Today there is an increasing smorgasbord of technologies: varieties of magneto-optical, tape, removable hard drive and CD-Recordable. Each has a different value proposition and is targeted at a narrow range of applications and users.

Like the grist of summer movies, some storage choices are held up by semi-natural disasters. For example, Apple's quality problems with the PowerBook 5300 and 190 models (and their reflection in lackluster sales in the distribution channel) had a ripple effect on storage.

APS Technologies Inc. recently pulled from its catalog a small removable drive developed by Avatar Systems Corp. The drive fit in the expansion bay of the notebook and used 170-Mbyte, 2.5-inch cartridges. According to APS, not enough PowerBooks sold to support the drive.

Such news is not of interest only to Wall Street; users today need to follow the business side of storage. Some manufacturers, once seemingly cemented in the market, are now adrift and insecure.

Several years ago, SyQuest was king of the hill and Iomega was near bottom; now their places are reversed. Last week, Iomega's stock took a dip. Perhaps it's a market correction. Maybe it's a reaction to rumors of competition from SyQuest that gives users a more interesting choice.

There's an old Jewish saying: The person that does not make a choice makes a choice. Maybe I'll pick up another 1-Gbyte hard drive and let my beard keep growing out. □

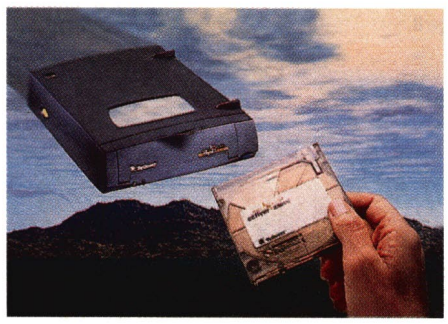
David Morgenstern is MacWEEK news editor. He invites feedback at david_morgenstern@macweek.com.

MacWEEK (ISSN 0892-8118) is published weekly, with the exception of Jan. 1, July 1, Sept. 2, and Dec. 23 and 30, by Ziff-Davis Publishing Co., 1 Park Ave., New York, N.Y. 10016. Single-copy price, including postage: $6. One-year subscription rate: U.S., $125; Canada/Mexico, U.S. $225; International, U.S. $350 (airmail). All orders must be prepaid. Direct **subscription inquiries** to Customer Service Department, MacWEEK, c/o JCI, P.O. Box 10634, Riverton, N.J. 08076-0634; (609) 786-8230. **Changes of address** require that a new application be filled out completely and include both new and old addresses. Allow four to six weeks for processing. We periodically make lists of our customers available to carefully screened mailers of quality goods and services. If you do not wish to receive such mailings, please let us know by writing to us at Customer Service Department, MacWEEK, P.O. Box 10634, Riverton, N.J. 08076-0634. **Postmaster:** Send address changes to MacWEEK, P.O. Box 10634, Riverton, N.J. 08076-0634. Periodicals postage paid at New York and additional mailing offices. Printed in U.S.A. Canada Post International Publications Mail Product (Canadian Distribution) Sales Agreement No. 410667. Canadian GST registration number is R140496720.

SyQuest jumps carts to 230MB

By David Morgenstern

Seeking to give its sagging sales a lift, SyQuest Technology Inc. this week will unveil its new entry-level removable-media drive.



With a less weighty feel, SyQuest's new EZFlyer 230MB reads and writes 230-Mbyte hard disk cartridges plus the older EZ135 media.

At $299, the new EZFlyer 230MB will cost about $60 more than the EZ135 drive SyQuest introduced last year. The new unit will use 230-Mbyte 3.5-inch cartridges as well as the 135-Mbyte EZ135 media. SyQuest said SCSI versions with 25- or 50-pin cables will ship next week; a parallel-port model for Intel-standard PCs is available now.

The company offers preformatted Mac and PC media. A single 230-Mbyte cartridge costs $29.95, about one-third more than the 135-Mbyte media. Packs of three, five and 10 cartridges carry prices of $80.95, $124.95 and $238.95, respectively.

The performance of the EZFlyer is similar to that of the EZ135. The EZFlyer has an average seek time of 13.5 milliseconds and a sustained data transfer rate of 2.4 Mbytes per second, SyQuest said.

Sporting a new, streamlined industrial design, the EZFlyer is housed in a slim enclosure with a window on top. It also offers a front-panel eject button that does not require users to run through the usual multistep routine to remove a SyQuest cartridge.

"It's been rebuilt from the ground up," said Ron Brown, SyQuest vice president of marketing. Brown said the performance of the EZFlyer will lure Internet users who want to run applications from removable media after downloading and users who want higher capacity for moving large files and storing backups, as well as a new market of mobile professionals who need to print color presentations at service bureaus.

SyQuest Technology Inc. of Fremont, Calif., is at (510) 226-4000 or (800) 245-2278; fax (510) 226-4102; sales@syquest.com; http://www.syquest.com. □

Sun extends language horizons

API and Beans at JavaOne show

By James Staten

At Sun Microsystems Inc.'s JavaOne developers conference in San Francisco last week, Sun's JavaSoft division charted a path that extends its namesake programming language over a broader developers base and across new platforms.

The company detailed a collection of new Java APIs, unveiled a new component-software technology that will work with OpenDoc, repositioned HotJava as a development tool and unveiled a new OS built entirely in Java.

The new APIs, due in 1997, will let developers create applets with richer functions for multimedia, commerce, security, and network distribution and management.

The multimedia APIs provide a framework for audio, video and MIDI playback; 2-D and 3-D imaging; animation; collaboration; and telephony. They were created in conjunction with several partners led by Intel Corp. of Santa Clara, Calif., and Silicon Graphics Inc. of Mountain View, Calif. At the core of JavaSoft's 2-D imaging API is Bravo from Mountain View-based Adobe Systems Inc.; Shockwave from Macromedia Inc. of San Francisco is part of the animation API.

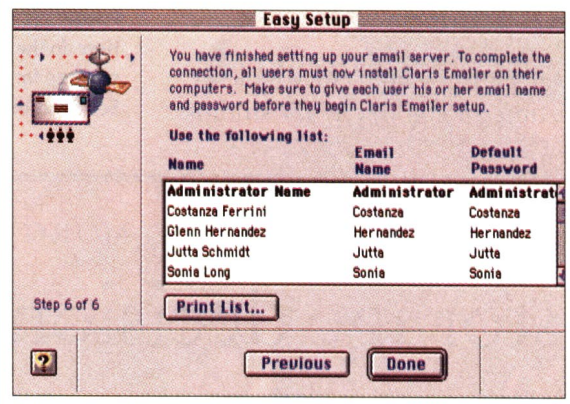
Apple was not included in the list of collaborators. However, Rick Eames, lead Roaster engineer at Natural Intelligence Inc. of Cambridge, Mass, said Apple was not snubbed. "They are going to be on the list. They just licensed Java a couple weeks ago, so they got into the game too late to be part of these announcements," he said.

JavaBeans, a set of component-software APIs due in September, will let programmers create Java applets from reusable Java code parts. JavaSoft said it will create bridge technology to let JavaBeans work with OpenDoc, Netscape Communications Corp.'s LiveConnect and Microsoft Corp.'s ActiveX.

HotJava, which emerged last year as a Java-enabled browser, has been refocused as a set of Java class libraries for building programs. The HotJava browser will not disappear, though; Sun said it will become a free example of what can be created with the HotJava development tools. A Mac version is expected in the fourth quarter.

JavaOS, a microkernel operating system built in Java, will ship in 1997 for handheld devices and alternative platforms such as Oracle Corp.'s proposed Network Computer.

Sun Microsystems Inc.'s JavaSoft division of Palo Alto, Calif., is at (415) 960-1300 or (800) 626-5282; fax (415) 473-7104; java@java.sun.com; http://java.sun.com. □



Claris OfficeMail employs an Emailer-like interface for configuring server user information.

Claris OfficeMail ships; POP 3 server has Net link

By Joanna Pearlstein

Claris Corp. this week began delivering Claris OfficeMail, a new e-mail server designed for small businesses and schools.

OfficeMail works over AppleTalk and TCP/IP networks and is based on Post Office Protocol 3 (POP 3) and SMTP (Simple Mail Transfer Protocol). As such, it can exchange e-mail with Claris Emailer or any POP 3 mail client for the Macintosh or Microsoft Windows (see 05.27.96, Page 1).

OfficeMail functions over a company's existing Internet links or connects via ClarisLink, an Internet gateway provided by Information Access Technologies Inc. of Berkeley, Calif. ClarisLink costs $39.95 per month for 10 hours of connect time; each additional hour costs $5.95.

Claris this week also released Emailer 1.1, an update that adds OfficeMail and AppleLink support. A free upgrade is available from online services and from http://www.claris.com.

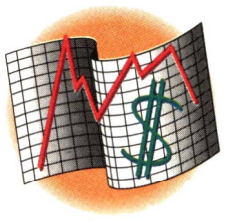
OfficeMail's estimated retail price will be $299; that includes a five-user pack of Claris Emailer 1.1. Emailer alone costs $49 per copy or $199 for a five-pack.

Claris recently acquired full rights to Emailer for an undisclosed sum. Although the mail client is published by Claris, the development has been done by Fog City Software Inc. of San Francisco, which owned the code. Jud Spencer, Emailer's lead developer, will now work for Claris, while Fog City President Will Mayall will remain with the company.

Claris Corp. of Santa Clara, Calif., is at (408) 727-8227 or (800) 544-8554; info@claris.com. □

Apple to SEC: Losses will continue

By Marty Cortinas



Apple's road to recovery doesn't look to get smoother any time soon. The company's recent filing with the U.S. Securities and Exchange Commission predicts more losses, sluggish sales and no dividends.

Apple's regular quarterly filing with the SEC revealed that the May recall and repair program for PowerBook and Performa models cost the company $60 million (see 05.13.96, Page 1). The program, which continues to delay sales of these machines, also contributed to a $369 million backlog of orders by May 2, up from $365 million by Feb. 2. Without the recall, the overall backlog would have been $220 million, according to Apple.

In the SEC filing, dated May 13, Apple said it expects to post operating losses for the rest of 1996. It also predicted that net sales will remain below year-ago levels through the first quarter of 1997. These predictions are consistent with statements made by company officials when Apple announced its $740 million loss in the second quarter (see 04.22.96, Page 1).

Gross profit margins for the second quarter fell to 9 percent, and last month Apple said that it expects margins to remain under pressure through at least the third quarter of 1996. The company previously said it would try to lift gross margins to about 20 percent.

The company also warned investors that it did not expect to resume dividend payments "for the foreseeable future." Apple had canceled first-quarter payments earlier this year. □

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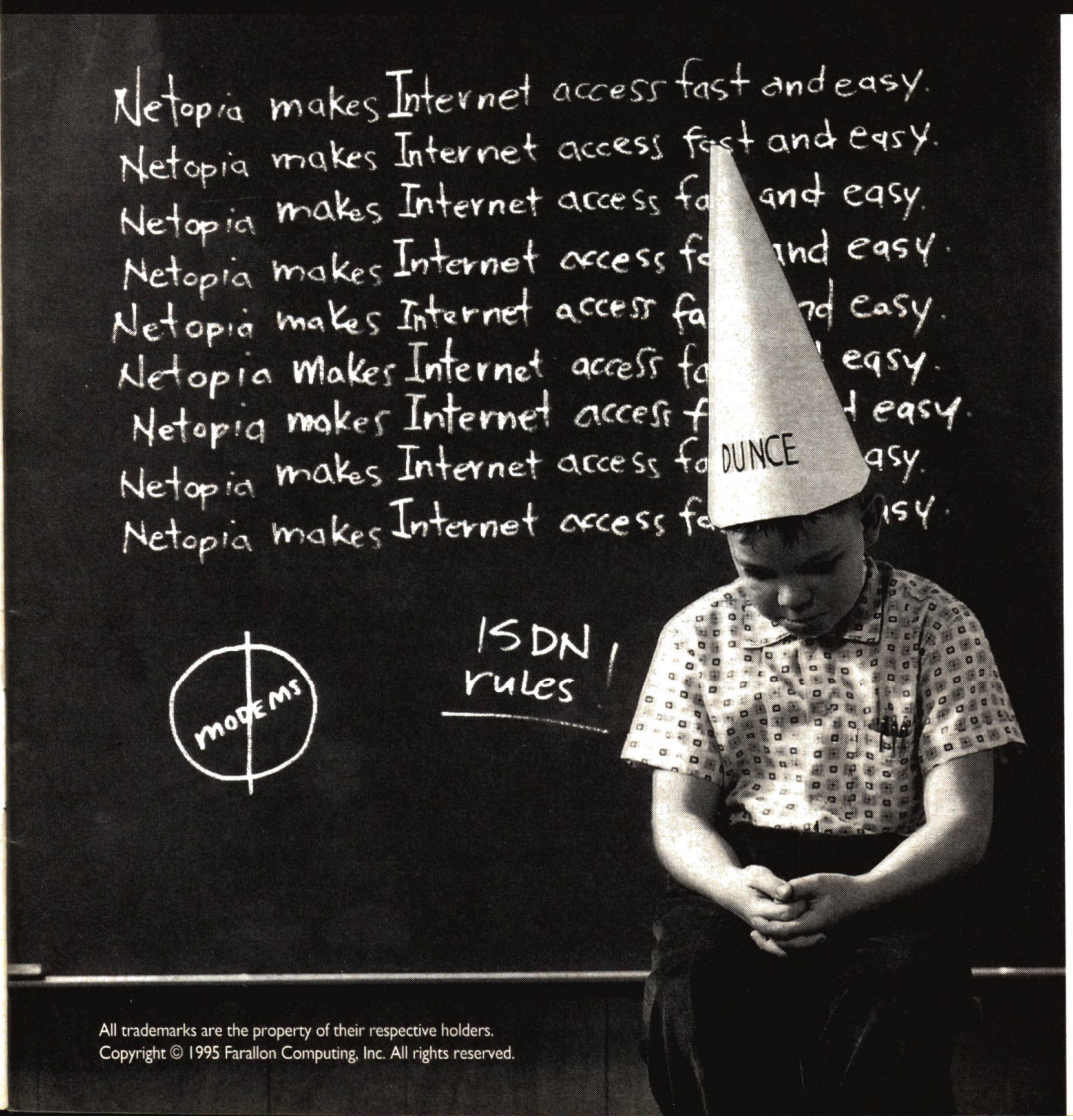
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OAI cuts ribbon on pair of CD server towers

By David Morgenstern

The skyline of information high-rises climbed even higher last week when Optical Access International Inc. released a new pair of high-capacity CD-ROM server towers.

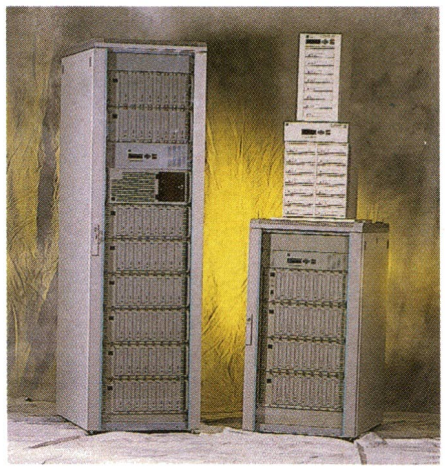
The company's CD/Enterprise Server 3200 and CD/Enterprise Server 6400 hold up to 32 and 64 CD-ROM drive modules, respectively. The modules are housed in eight-slot rack-mounted chassis.

Both Fast SCSI-2 systems use OAI's proprietary Optiplex RISC processor, which lets each chassis use one SCSI address. The servers also let users hot-swap modules after a mechanism fails, the company said.

A fully packed 3200 with quadruple-speed drives costs $21,995, and a version with 6.7x modules is $24,995. Configurations with 24 modules cost $18,000 and $21,995 with 4x and 6x mechanisms, respectively.

The 6400 is available with either 40, 48, 56 or 64 4x modules and ranges in price from $28,000 to $38,995. The 6.7x versions range from $33,000 to $45,995.

The systems come with OAI's SuperCache cross-platform driver software, which supports directory and icon caching as well as hybrid ISO 9660 discs.



Towering over their eight- and 16-drive cousins, OAI's CD/Enterprise Server 3200 and 6400 can hold up to 32 or 64 discs, respectively.

Optical Access International Inc. of Woburn, Mass., can be reached at (617) 937-3910 or (800) 433-5133; fax (617) 937-3950; sales@oai.com; http://www.oai.com. □

LED printers a 'plus' for Kyocera

Workgroup models feature lower prices

By David Morgenstern

Updating its FS line of LED printers, Kyocera Electronics Inc. recently released a trio of "plus" models with improved network capabilities and lower price tags.

Aimed at workgroup applications, the printers use firmware that supports SNMP (Simple Network Management Protocol), used by many third-party network utilities.

The 10-pages-per-minute FS-1600+, slated for a July release, will cost $1,745, which is $250 less than the similar FS-1600A. It will offer a resolution of 600 by 600 dpi.

The $2,695 FS-3600+, available now, has features similar to the previous FS-3600A but at a lower price; the older model costs $3,395. It provides 600-by-600-dpi resolution and has an output speed of 18 ppm.

Both the models use 50-MHz Motorola 68LC040 processors and come with 2 Mbytes of RAM, expandable to 66 Mbytes.

Kyocera's new FS-3600+ workgroup printer offers 600 dpi and a print speed of 18 ppm.

Using a 16.5-MHz processor, the 10-ppm $1,545 FS-1550+ offers a native resolution of 300 dpi, and 300 by 1,200 dpi via interpolation, Kyocera said. It comes standard with 1 Mbyte of RAM that can be expanded to 5 Mbytes.

All the printers ship with Kyocera's PostScript Level 2 and HP PCL 5e emulations. They include a simultaneously active and switching bidirectional parallel interface; users can add a $429 Ethernet or $215 LocalTalk card.

The models come standard with a 250-sheet letter-size input tray and offer a raft of paper-handling options, including a face-down output tray for $735, a 2,000-sheet feeder for $740, a duplexing unit for $685 and a 15-bin sorter for $2,135.

Kyocera Electronics Inc. of Somerset, N.J., is at (908) 560-3400 or (800) 232-6797; fax (908) 560-8380; http://www.kyocera.com. □

For the record

In the 05.27.96 story about Apple's Mac OS clone designs (Page 1), the Phase One models were incorrectly described. The systems are based on the Power Mac 9500 and Power Mac 7200.

Apple shipping new 120-MHz Performa model

By Joanna Pearlstein

Apple last week shipped a Performa aimed at game and multimedia enthusiasts.

The $2,599 Performa 6320CD, a faster version of the Performa 6300 that shipped last October, packs a 120-MHz PowerPC 603e processor. It comes with 16 Mbytes of RAM, a 1.2-Gbyte hard drive, a four-speed CD-ROM drive and a 28.8-Kbps internal modem from Global Village Communication Inc.

The 6320CD also comes with the Apple Multiple Scan 15 Display, a 15-inch monitor with a 13.3-inch viewing area and a 0.28mm dot pitch. Also included is the Apple TV Presentation System, which allows users to view television programs and connect to external video sources.

Software pre-installed on the system includes ClarisWorks, America Online, Intuit Inc.'s Quicken and Apple's At Ease. Among the games and multimedia titles in the bundle are MacPlay's Descent; Theatrix Interactive's Hollywood, Sanctuary Woods Multimedia Inc.'s Buried in Time and Strategic Simulations Inc.'s Allied General. □

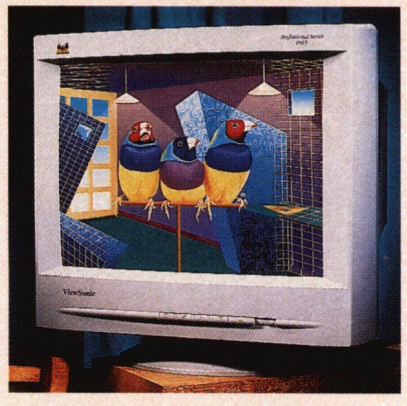
HIGH-RES MONITOR

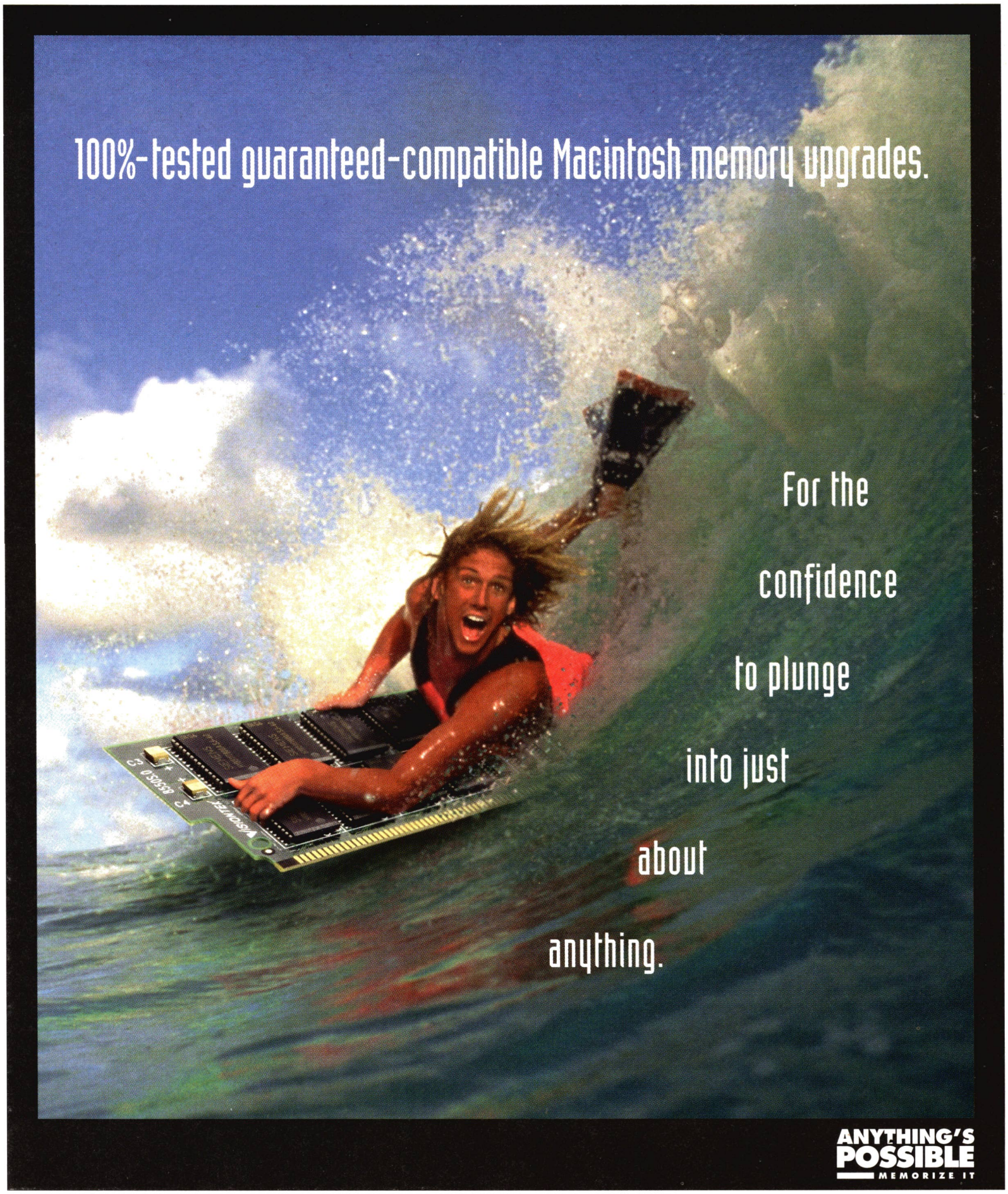
Setting its sights on graphics professionals, ViewSonic Corp. this week plans to roll out a 21-inch display that will support a resolution of 1,600 by 1,200 pixels at a refresh rate of 85 Hz.

Called the ViewSonic P815, the $2,195 monitor is based on a shadow mask tube from Matsushita and has a dot pitch of 0.25mm. On Intel-based PCs, the P815 will drive resolutions up to 1,800 by 1,440 pixels; that resolution will not work on Macs, ViewSonic said.

ViewSonic Corp. of Walnut, Calif., can be reached at (909) 869-7976 or (800) 888-8583; fax (909) 468-3756; http://www.viewsonic.com.

— By Joanna Pearlstein





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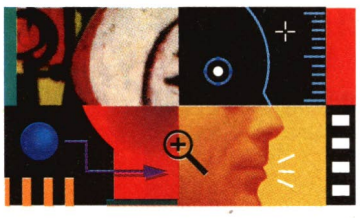

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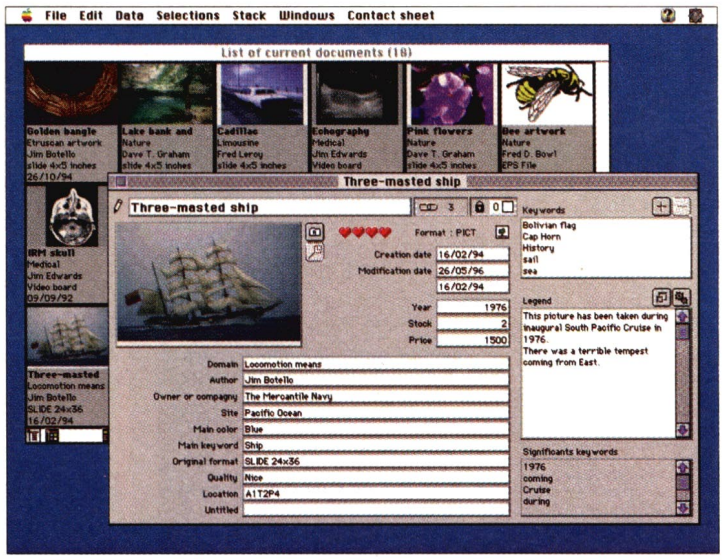


ImageBase-Pro will bring relational image cataloging to U.S. Mac users. The graphics database includes extensive search features and customizable fields.

Orkis circles in U.S. waters

By Rebecca Gulick

Eyeing the growing image-management market in North America, French vendor Orkis SA this summer will form Orkis Inc. and bring ImageBase-Pro, its cross-platform image database, to the United States.

The French Version 2.7 of ImageBase-Pro shipped in February. An English version is due in the United States in July. The relational database enables pre-press users to archive hundreds of thousands of multimedia files, the company said. Built with ACI US Inc.'s 4th Dimension database, ImageBase-Pro lets users manage and preview high-resolution images stored on a CD-ROM jukebox.

The program lets users arrange records in categories called "themes" and link an image to multiple themes. Each image is linked to an identification card, which includes an indexed text field and 17 additional fields that

See Orkis, Page 10

Phase One camera back lowers costs

By Kelly Ryer

Phase One United States Inc. has cropped the price tag for capturing studio photographs digitally with its Studiokit camera back.

Available now, the $13,990 Studiokit bundle contains camera-back hardware, image-editing software, two light boxes and two filters. The Studiokit camera back fits 4-by-5-inch view cameras and connects to a Mac via SCSI. Like the company's $25,000 PhotoPhase Plus camera back, the Studiokit has a light sensitivity equivalent to 800 ASA and exposure times as fast as one-fifteenth of a second.

The camera back scans images in one pass over a capture area of 2.7 inches by 4.0 inches. It grabs a typical image in about three minutes, Phase One said.

Studiokit ships with two portable 750-watt tungsten light boxes, but new flicker suppression enables photographers to use the camera back in low-wattage tungsten or fluorescent light. Also included are all-purpose AR1 and TG1 tungsten filters.

The company's bundled Image Capture Software, which requires 24 Mbytes of RAM, lets users display and manipulate previews and final images. The software stores

See Phase, Page 10

Encore 4.1 reaches new MIDI ground

By Kelly Ryer

Musicians with scores to settle can look to Passport Designs Inc. for help. The company in May released Encore 4.1, an update to its $595 music-notation software that works with more MIDI synthesizers and offers several ease-of-use interface tweaks.

Encore creates musical scores automatically while a user performs live on a MIDI instrument, plays a recorded MIDI file or taps out notes manually with a mouse. The program transcribes the sounds into standard musical notation and then provides tools for fine-tuning with dynamic markings, symbols, lyrics, text notation or guitar-chord diagrams. Musical selections can be transposed to different keys and printed.

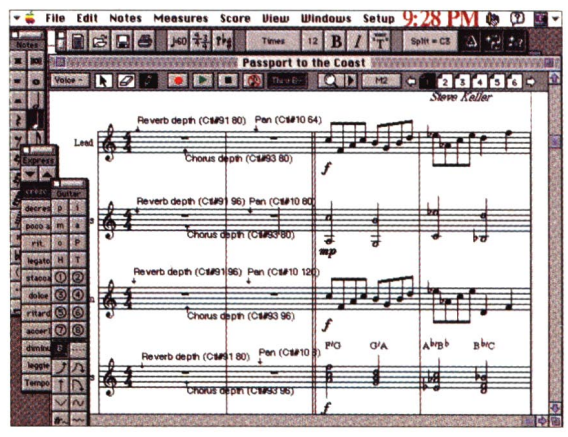
Version 4.1 added a new device file that supports more than 10 synthesizers from Alesis Corp., Korg USA Inc., Roland Corp. and Yamaha Corp. of America. Passport also added a new pop-up pitch indicator that identifies a particular note's name and octave. A redesigned tool bar, access to recently used files and a continuous-deletion option speed editing in Version 4.1, Passport said.

The music library at MCA Inc.'s Universal Studios subsidiary in Universal City, Calif., has used Encore for several years, most recently for the film "Phenomenon."

"It's very fast," said Julian Bratolyubov, Universal music supervisor. "We get a MIDI file from the composer and extract that. We use Encore to create the score and copy the parts. The output is great — each part looks just like a published one."

Upgrades from previous versions are $49.

Passport Designs Inc. of Foster City, Calif., is at (415) 349-6224 or (800) 443-3210; fax (415) 349-8008; passport@aol.com. □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Passport to the Coast
Steve Keller
Lead
Reverb depth (C#91 80) Pan (C#10 64)
Chorus depth (C#93 80)
Reverb depth (C#91 96) Pan (C#10 80)
Chorus depth (C#93 80)
Reverb depth (C#91 96) Pan (C#10 120)
Chorus depth (C#93 96)
Reverb depth (C#91 80) Pan (C#10 0)
Chorus depth (C#93 96)

Nota bene: Encore 4.1's tool bars make it easier to modify the bars of musical notation that the program generates on the fly. The upgrade reads music from 10 new MIDI synthesizers.

Newly native, MacDraft returns with v4.2.1

By Kelly Ryer

One of the Mac's first applications is back in the picture. MacDraft, which made its debut in 1985, has found a foster parent in Microspot USA Inc., which lowered the price of the 2-D CAD program to $249. Version 4.2.1 runs native on Power Macs and is due to ship this week.

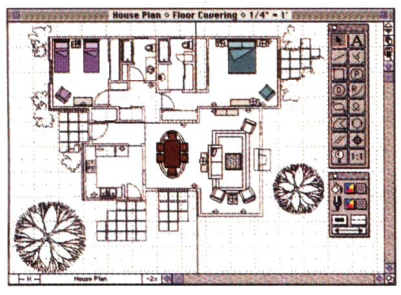
MacDraft's features remain the same as last October's Version 4.2, which was the last update from original developer Innovative Data Design Inc. of Concord, Calif. IDD went out of business earlier this year.

MacDraft's multilayer drawing environment includes configurable drawing tools, measurements in U.S. and metric units, and dimensioning capabilities. An integrated database can update attributes automatically and create reports in Microsoft Excel format.

According to Microspot, MacDraft has more than 30,000 registered users.

Upgrades will be $49 for a limited time for owners of Version 4.0 or later; users of previous versions can upgrade for $99.

Microspot USA Inc. of Saratoga, Calif., can be reached at (408) 253-2000 or (800) 622-7568; fax (408) 253-2055; uspot@aimnet.com; http://www.microspot.com.



MacDraft has found a new home in Microspot USA. Upgrades to the 2-D CAD program are $49 until Aug. 31.

Shinko printers make splash

By Matthew Rothenberg

Shinko Technologies Inc. in May stepped out with a new pair of dual-technology color printers.

The ColorStream Digital A and ColorStream Digital B printers can switch between 300-dpi thermal-wax and dye-sublimation output. Unlike Shinko's ColorStream II line of PostScript Level 2 printers, the new models are aimed at digital photography and medical imaging applications, and use a proprietary image-processing board to rasterize pictures.

The $8,495 ColorStream Digital A offers a full-bleed, letter-size imaging area of 9.4 by 12.6 inches and ships with 24 Mbytes of RAM. The $14,495 ColorStream Digital B outputs full-bleed, tabloid-size pages measuring up to 12.2 by 18 inches and comes

See Shinko, Page 10

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MacBench 3.0 publishing graphics mix test performed on Power Mac 9500/132 with 40MB of RAM @ 1152 x 870 in 16.7 million colors with Matrox Millennium for PCI Power Mac, Diamond Javelin, ATI Xclaim and Radius Thunder 30/1600.

Photoshop plug-in visualizes color

By Rebecca Gulick

Putting the squeeze on color, Digital Frontiers LLC recently released software that the company said can enable eight-bit systems to display 24-bit-color images without dithering or visible banding.

Available as an Adobe Photoshop plug-in or as a custom-code module for DeBabelizer from Equilibrium of Sausalito, Calif., the new HVS Color uses psychovisual algorithms that sort color areas to alter the way the eye sees them, the company said.

The $99 plug-in enables lossless compression formats such as GIF to achieve compression ratios of 10 percent to 40 percent. HVS Color improves its compression efficiency by reproducing images with fewer colors and letting users selectively flatten dark and light colors, Digital Frontiers said.

Digital Frontiers LLC of Evanston, Ill., is at (847) 328-0880 or (800) 328-7789; fax (847) 869-2053; douglasf@digfrontiers.com; http://www.digfrontiers.com/. □

Phase

From Page 8

12 bits of color per channel, resulting in RGB files as large as 25 Mbytes. Image Capture Software boasts controls for applying an unsharp-mask filter during capture, adjusting gray balance, selecting highlight and shadow points, controlling color gradations, and setting output size and quality. Phase One's software supports the Agfa ColorTag scheme and 10 Agfa ColorLinks for color calibration and CMYK separations.

Phase One United States Inc. of Northport, N.Y., is at (516) 757-0400 or (888) 742-7366; fax (516) 757-2217; info@phaseone.com; http://www.phaseone.com. □

Orkis

From Page 8

can contain keywords, numerical data and relevance indicators. Users can create a dictionary of keywords. Several levels of password protection are available.

ImageBase-Pro can perform text, image-format or keyword searches. Users can also search for duplicate records or use Boolean operators, and custom searches can be designed for specific groups of users. The software can display up to 100 thumbnail views on a 20-inch monitor. From a thumbnail view, users can display a full-screen version or access an image's ID card. ImageBase-Pro can also launch each file's creator application directly.

The software supports PICT, TIFF, EPS, GIF and Desktop Color Separation (DCS) image formats, as well as QuickTime movies. An associated-file feature is useful for DCS-format images, where each image consists of five files; the software automatically links these DCS files to the same index card.

Users of ImageBase-Pro can import images and associated text from other databases, such as Claris Corp.'s FileMaker Pro. A simpler method imports any images dragged onto the ImageBase-Pro icon. The package includes an Adobe Photoshop plug-in that can export images directly into ImageBase-Pro.

Version 2.8 of ImageBase-Pro is planned for August, along with Windows 95 and NT versions. It will offer improved searching and updating capabilities as well as features for connecting ImageBase-Pro databases to the Internet or an intranet. Version 2.8 will let users create their own CD-ROM-based image catalogs with a player utility that can be burned onto the CD-ROM along with the images.

A stand-alone version of ImageBase-Pro 2.7 costs $1,980; site licenses for three to 10 users range from $6,900 to $12,500.

Additional modules include a $298 QuarkXPress linking option, an $898 photo library management option and a $358 file-format converter.

Orkis SA of Aix en Provence, France, can be reached at 33-4-239-3370; fax 33-4-239-3380; orkis@applelink.apple.com. □

Shinko

From Page 8

standard with 48 Mbytes of RAM.

Both models can output CMY and CMYK color and print a three-color letter-size page in about three minutes, Shinko said. Users can also purchase an anti-ultraviolet CMY ribbon for $220, which coats 100 sheets.

The devices come standard with parallel and SCSI interfaces. Each can accommodate up to 128 Mbytes of RAM.

The printers ship with FasterRaster, a proprietary Adobe Photoshop plug-in to output images. Shinko said the printers use an application-specific integrated circuit that supports ColorSync 2.0 color-matching and image-processing capabilities, such as negative printing, enlargement and mirrored reversals.

In addition, the company this month expects to ship its PostScript models, the $7,995 letter-size ColorStream II DP and the $14,995 tabloid-size ColorStream II DPL (see 02.12.96, Page 1).

Shinko Technologies Inc. of Hayward, Calif., is at (510) 441-1175 or (800) 997-4465; fax (510) 441-2263; info@shinkotech.com. □

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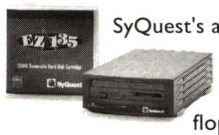

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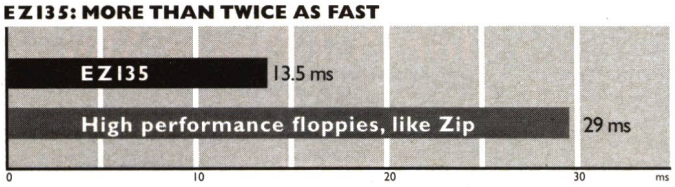

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REALITY CHECK

Only 3 percent of the U.S. population uses the Web, and only 10 percent has e-mail.

— Morgan Stanley & Co. Inc.

Apple plans to bring native PPP to OT, ARA

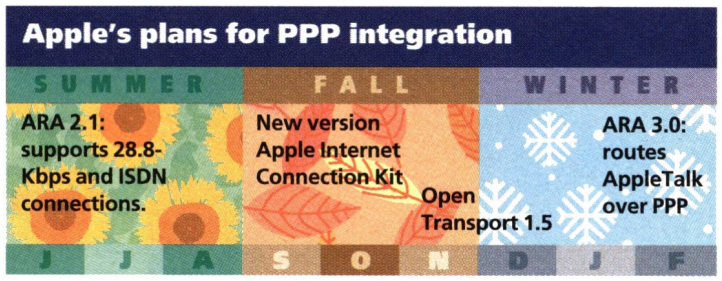
Protocol to carry AppleTalk traffic

By Joanna Pearlstein

Furthering its efforts to support industry standards, Apple over the next eight months will integrate Point-to-Point Protocol with its networking architecture and remote-access product line, the company said.

Point-to-Point Protocol, or PPP, is an efficient remote-access standard that provides significantly faster throughput than AppleTalk. PPP is integrated into several operating systems, including Microsoft Windows 95. Apple's only current implementation of the protocol is in the freeware extension MacPPP, which is included with the Apple Internet Connection Kit but runs in 680x0 emulation.

"Our intent is to get PPP built into the OS as soon as the software is ready and as soon as customers and the market demand it," said Richard Ford, Apple product manager for Open Transport.


Apple's plans for PPP integration
SUMMER
FALL
WINTER
ARA 2.1: supports 28.8-Kbps and ISDN connections.
New version Apple Internet Connection Kit
Open Transport 1.5
ARA 3.0: routes AppleTalk over PPP
J J A S O N D J F

Unlike other remote-access networking protocols, such as Serial Line Internet Protocol, PPP can carry traffic from multiple protocols simultaneously, even though it is most commonly used for TCP/IP. Apple is preparing a TCP/IP-capable version of PPP first and will integrate AppleTalk with it later, according to Ford.

A TCP/IP-capable version of the PPP extension for Open Transport is currently being beta tested; it will be the first native Power Mac implementation of PPP. Ford said the tool is slated for inclusion in Open Transport 1.5, code-named Paris, but will make its debut in the next revision of the Apple Internet Connection Kit, likely to arrive this summer. Open Transport 1.5 will ship this fall or early next year, Ford said.

The new PPP capability will appear in the form of two control panels. The first will be a PPP control panel similar to ConfigPPP that will let users set up their PPP

See PPP, Page 15

Fore, Asanté update ATM, Ethernet lines

By Clifford Colby

Fore Systems Inc. and Asanté Technologies Inc. are expanding their switching families this summer, bringing faster throughput to Mac networks.

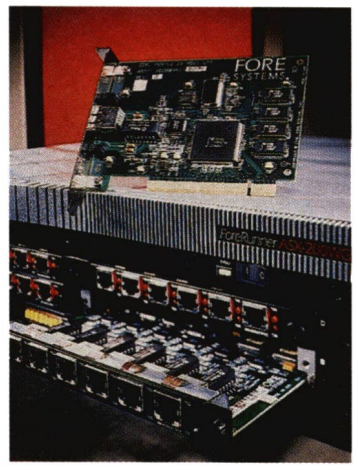
Fore ended May by shipping its family of 25-Mbps Asynchronous Transfer Mode (ATM) devices. Fore's low-speed ATM switches are available with 18 ports for $9,995 and 24 ports for $10,750. Fore is also bundling the switches with its new 25-Mbps ATM PCI cards, which come with Open Transport drivers. The bundles include the same number of cards as switch ports and cost $12,695 for the 18-port switch-and-card set and $14,350 for the 24-port device with cards.

Users can purchase cards separately for $295 each. Fore is also offering a $1,625 six-port 25-Mbps ATM module that can be used with its line of switching chassis.

Fore also lowered the prices on its 155-Mbps ATM cards by 50 percent. Its 155-Mbps ATM card for fiber-optic cabling now costs $595, down from $1,195, and its card for connecting to Category 5 unshielded twisted-pair copper wire now sells for $495, reduced from $995.

On the Ethernet front, Asanté

See Switches, Page 15



Fore's new 25-Mbps PCI cards and switches let users bring lower-speed ATM links to the desktop.

Serving up real-time chat

By Joanna Pearlstein

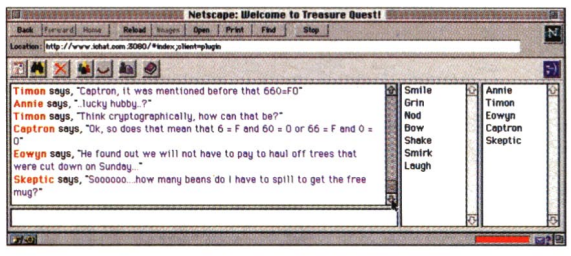
ichat Inc. is attempting to boost Internet interactivity by bringing a new face to real-time chat. The ichat system comprises a free Netscape Navigator plug-in on the client side, which is expected to ship this week, and a server that runs on Windows NT and Solaris. No date has been set for a planned Mac server.

When a client connects to a chat server, an HTML-frames document opens and the chat session is displayed in the lower part of the browser window. Users participate by typing directly in the ichat frame.

ichat uses a proprietary chat protocol but also supports Internet Relay Chat through the same interface, the company said. Users can also connect to ichat servers via a text-based Telnet application.

Each server supports up to 1,000 concurrent users. A 20-concurrent-user license costs $495; a license for 200 concurrent users is $2,995.

ichat Inc. of Austin, Texas, can be reached at (512) 349-0339; fax (512) 349-0005; sales@ichat.com; http://www.ichat.com.


Netscape: Welcome to Treasure Quest!
Timon says, "Captron, it was mentioned before that 660=F0"
Annie says, "..lucky hubby..?"
Timon says, "Think cryptographically, how can that be?"
Captron says, "Ok, so does that mean that 6 = F and 60 = 0 or 66 = F and 0 = 0"
Eowyn says, "He found out we will not have to pay to haul off trees that were cut down on Sunday.."
Skeptic says, "Soooooo...how many beans do I have to spill to get the free mug?"
Smile
Grin
Nod
Bow
Shake
Smirk
Laugh
Annie
Timon
Eowyn
Captron
Skeptic

ichat lets Web surfers participate in live chats through their Web browsers.

Digital Ocean splashes onto Mac, Windows

By Joanna Pearlstein

Digital Ocean Inc. expanded the reach of its connectivity options in May when it announced that its wireless LAN products now work on Mac and Microsoft Windows platforms.

The company this month released software that makes its Grouper and Manta wireless pods compatible with two remote-access-point products designed for Intel-standard PCs: RoamAbout from Digital Equipment Corp. of Maynard, Mass., and WaveLAN from Lucent Technologies Corp. of Murray Hill, N.J. This compatibility lets Digital Ocean's products be used in cross-platform environments, the company said.

See Wireless, Page 15

Notes servers to publish databases on the Internet

By Clifford Colby

Lotus Development Corp. this week plans to release a beta version of its Notes server that will open the groupware system to the Internet.

According to Lotus, the update, expected to be finished at the end of the second quarter, will convert Notes documents into HTML format and serve the files to the Web.

With the update, clients will be able to access and interact with Notes data and applications using a Web browser. Administrators will be able to control access to Web-based information through passwords.

"It is a necessary step for them. Notes users won't need to invest in all of the Internet technology, so it will keep Notes sites from straying away," said Chris Le Tocq, director of software research at Dataquest Inc. in San Jose, Calif. "You've got dedicated Internet servers competing mightily, and the question is whether Notes can keep up. I take this as a good step in that direction."

The beta version of the Notes server runs on OS/2, Unix and Windows machines and requires Release 4 of the Notes server software. Code-named Domino, the beta version is available at http://domino.lotus.com. Lotus released the 680x0 and Power Mac clients for Notes 4.1 in May.

Lotus Development Corp. of Cambridge, Mass., can be reached at (617) 577-8500 or (800) 346-1305; fax-back (800) 575-6887; http://www.lotus.com. □

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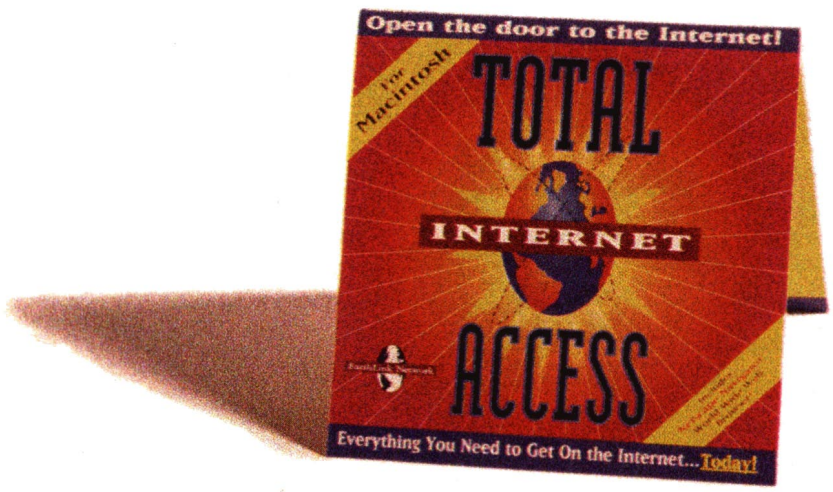

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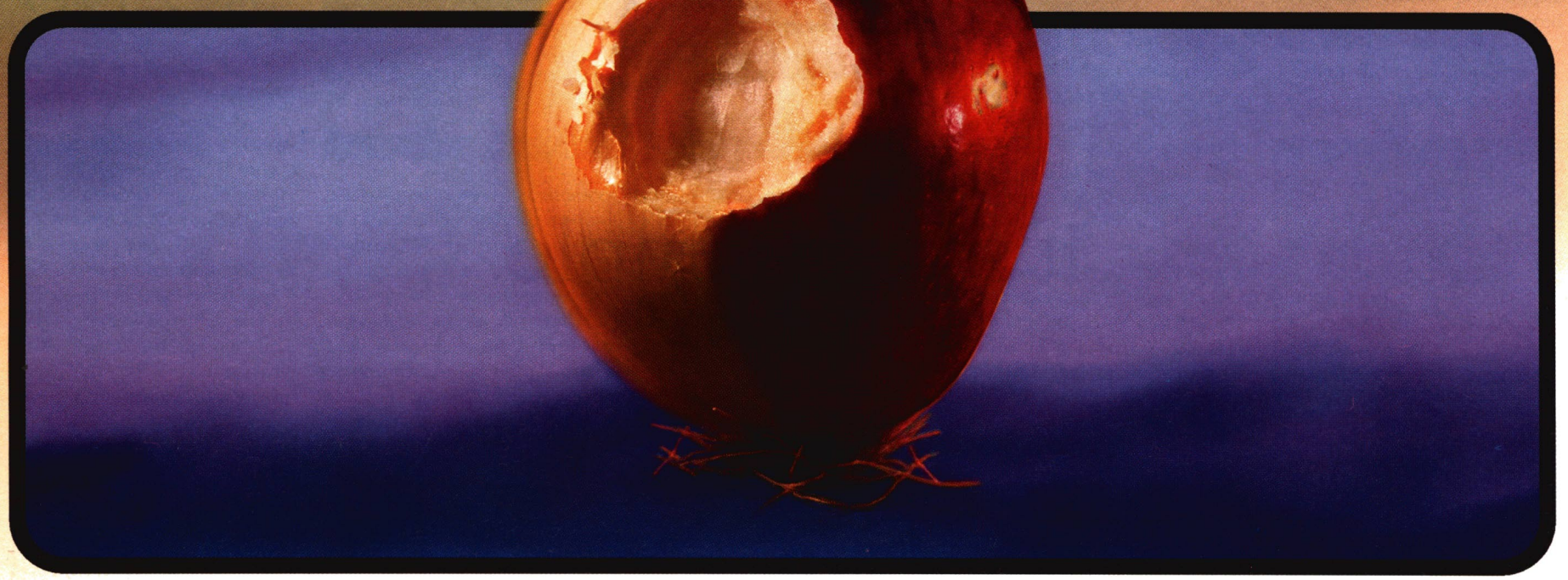

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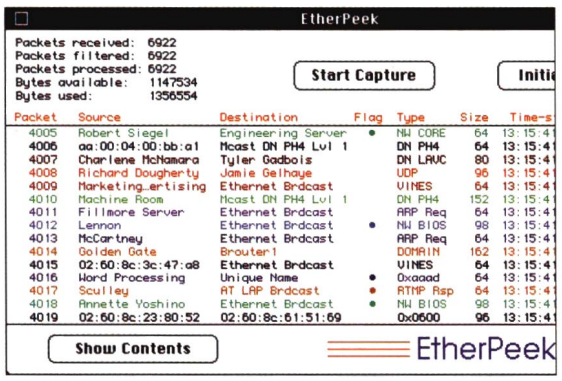
EtherPeek to gain IP skills

By Joanna Pearlstein

Adding Internet features to its protocol analyzer, The AG Group Inc. this month will ship EtherPeek 3.0.

The new version, the first native Power Mac incarnation of this network diagnostic tool, will sport a plug-in architecture for expanding its capabilities.

One plug-in will let administrators keep tabs on users' Internet surfing by logging URLs (uniform resource locators) and Usenet newsgroup access. Another will display Name Binding Protocol requests, used for troubleshooting network devices such as laser printers.


EtherPeek
Packets received: 6922
Packets filtered: 6922
Packets processed: 6922
Bytes available: 1147534
Bytes used: 1356554
Start Capture
Initi
Packet Source Destination Flag Type Size Time-s
4005 Robert Siegel Engineering Server • NW CORE 64 13:15:4
4006 aa:00:04:00:bb:a1 Mcast DN PH4 Lvl 1 DN PH4 64 13:15:4
4007 Charlene McNamara Tyler Gadbois DN LAVC 80 13:15:4
4008 Richard Dougherty Jamie Gelhaye UDP 96 13:15:4
4009 Marketing...ertising Ethernet Brdcast VINES 64 13:15:4
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4013 McCartney Ethernet Brdcast ARP Req 64 13:15:4
4014 Golden Gate Brouter1 DOMAIN 162 13:15:4
4015 02:60:8c:3e:47:a8 Ethernet Brdcast VINES 64 13:15:4
4016 Word Processing Unique Name • 0xaaad 64 13:15:4
4017 Sculley AT LAP Brdcast • RTMP Rsp 64 13:15:4
4018 Annette Yoshino Ethernet Brdcast • NW BIOS 98 13:15:4
4019 02:60:8c:23:80:52 02:60:8c:61:51:69 0x0600 96 13:15:4
Show Contents
EtherPeek

The AG Group's EtherPeek 3.0 displays information about network devices and the packets they transmit.

Version 3.0 will automatically map TCP/IP and AppleTalk network IDs to corresponding machine names. New AppleScript support will let users create functions, such as e-mail notifications, when certain network events occur.

Other new features will include a network traffic graph, a new log view that displays event information and the capability to calculate statistics on a network's speed.

EtherPeek will be priced at $995; upgrades from previous versions will cost $250.

In related news, AG said it is now shipping a native Power Mac version of Nok Nok A/S 2.0, the company's $249 AppleShare file management software.

The AG Group Inc. of Walnut Creek, Calif., can be reached at (510) 937-7900 or (800) 466-2447; fax (510) 937-2479; info@aggroup.com; http://www.aggroup.com. □

PPP

From Page 12

account information and work as a dialer. In the second, a modem control panel, users will input modem port, CCL (Command Control Language) scripts and other parameters; it will serve as a central holding place for this information.

On the Apple Remote Access (ARA) front, Apple in January will deliver ARA 3.0, the first version to be optimized for Open Transport and to support PPP. To gain PPP support, ARA 3.0 will be rewritten using a streams architecture like Open Transport's, Ford said. It will support TCP/IP and AppleTalk over PPP.

In the interim, Apple this month will roll out ARA 2.1, an Open Transport-compatible version of the remote-access client and personal server that will support 28.8-Kbps and ISDN connections, and provide increased reliability.

At that time Apple will also release a PCI version of the ARA MultiPort Server. The new version will use ARA 2.1 and include a six-port PCI card. □

Wireless

From Page 12

Digital Ocean offers the $749 Grouper and the $799 Manta, which provide LocalTalk and EtherTalk LAN connections, respectively. The company's Starfish is an access point that connects devices equipped with the Grouper and Manta products.

"What Digital Ocean is doing is adding features for vertical markets," said Ken Dulaney, the San Jose, Calif-based vice president of mobile computing for Gartner Group Inc. "It's not a breakthrough, and I don't think it's going to change their position. They're going to remain a niche player."

Dulancy estimated that Lucent has a 25 percent share of the wireless LAN market; Digital Ocean's percentage is smaller.

In related news, Digital Ocean said it has released a version of the Manta with an RJ-45 connector; it previously came with an AAUI (Apple attachment unit interface) connector only.

Digital Ocean Inc. of Lenexa, Kan., can be reached at (913) 888-3380 or (800) 345-3474; fax (913) 888-3342; marketing@digitalocean.com; http://www.digitalocean.com. □

Switches

From Page 12

this month plans to ship three new switches. The $5,595 Asanté 5216 will include 16 10-Mbps Ethernet switched ports and two 100BASE T full-duplex switched ports. In July, the company expects to ship an expandable version of the 5216, the $6,995 Asanté 5216xp switch. Users will be able to add a Fiber Distributed Data Interface module or 100-Mbps Ethernet module with fiber or copper connections.

The company's 71010xp switch, due this fall, will feature eight dual-speed 10/100 BASE T ports that will sense transmission speed. The unit will also include two expansion slots for boosting the switch's port count. Although pricing has not been set, Asanté said the device should cost less than $750 per port.

Fore Systems Inc. of Warrendale, Pa., can be reached at (412) 772-6600; fax (412) 772-6500; info@fore.com; http://www.fore.com.

Asanté Technologies Inc. of San Jose, Calif., can be reached at (408) 435-8388 or (800) 662-9686; fax (801) 566-8952; sales@asante.com; http://www.asante.com. □

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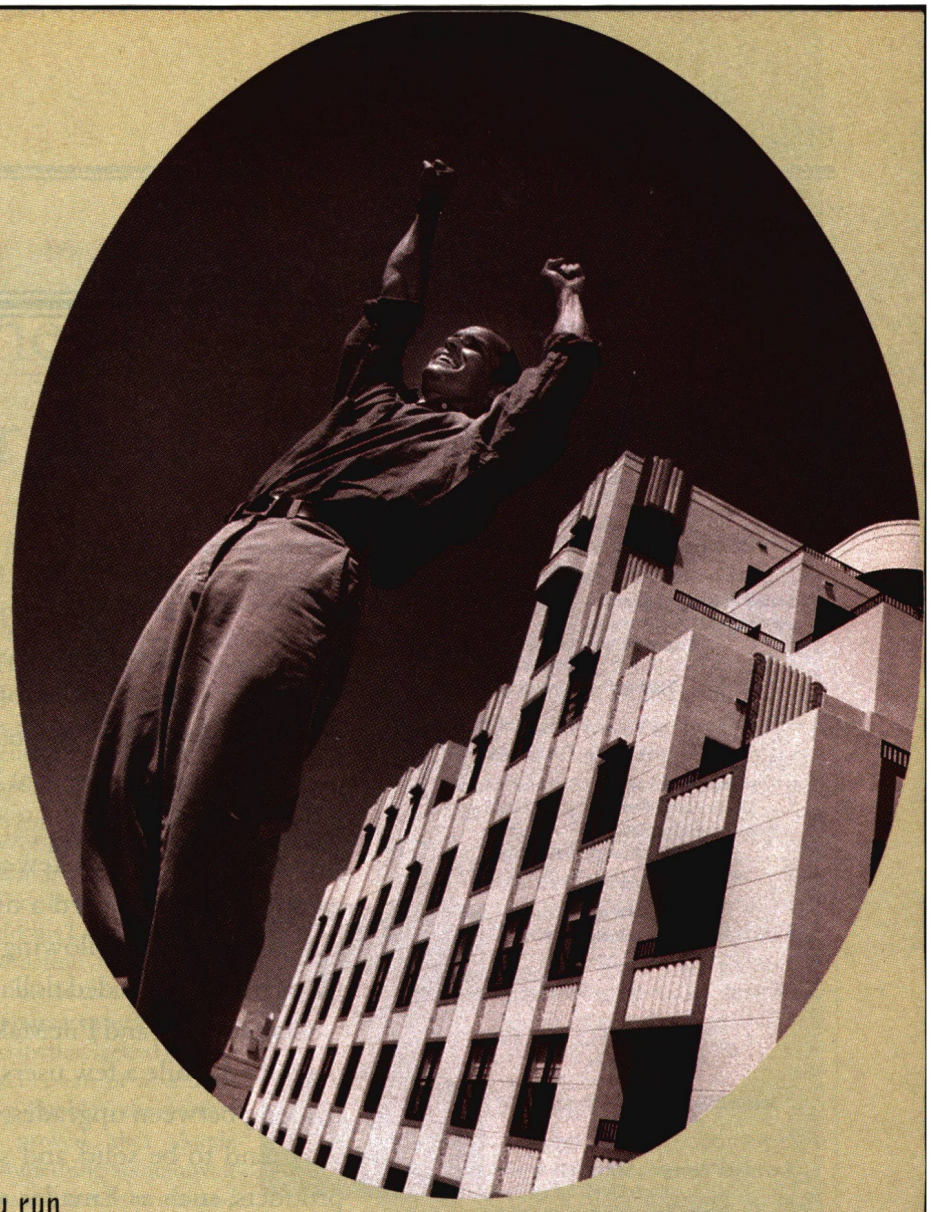

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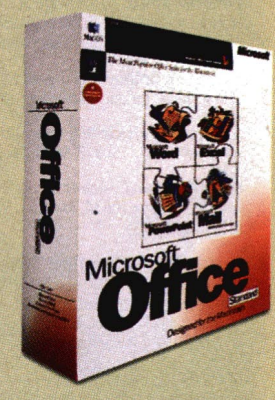

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BPA INTERNATIONAL

A cavalcade of Claris

A few months ago Gilbert Amelio remarked at a private company meeting that he did not bring up Claris Corp. in the context of a discussion on Apple's woes because there was "nothing to fix."

Although we doubt that any organization is above improvement at some level, Claris has consistently proven to be one of the few jewels in Apple's tarnished crown. It has delivered a number of strong products that have a wide following of users, which has contributed much-needed dollars to the bottom line.

ClarisWorks and FileMaker Pro are the clear standouts. And while a few users say that they have to wait too long between upgrades, when the upgrades arrive they tend to be solid and stable. New, high-growth products, such as Emailer and the upcoming OfficeMail, are creating new customers for Claris.

Equally important, Claris has been able to establish a valuable brand name independent of Apple. This has helped it create a strong presence overseas, which accounts for about half the division's revenues. Having a separate identity for Claris is important for Apple because that makes its software division a much more valuable asset if, in the future, the company revives its plan to spin off Claris as a public company.

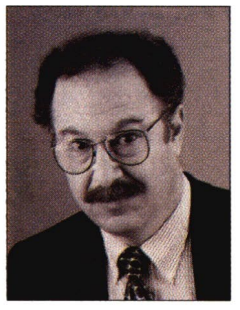
Claris was also able to effectively become the distribution arm of AppleSoft. It now markets system software, the Internet Connection Kit and Apple Remote Access. Claris' sales group seems best equipped to get those products visibility in the retail channel.

Despite Amelio's pronouncement, however, Claris could have executed better, especially in its cross-platform efforts. By failing to release FileMaker Pro for Windows 3.1 and opting for a Windows 95-only approach, Claris left money on the table. Sites with Windows 3.1 and Mac users were left out in the cold. And their cold cash did not make it into the Claris coffers. We're glad to see that problem will be fixed.

Good as that makes Claris, we're still certain it's not perfect. □

THE SECOND DECADE HENRY NORR

MHz may not mean much, but they are nice to have



Another bright spot on the Mac horizon: The PowerPC is poised to edge past the Pentium, at least for a lap or two, in the processor-performance derby.

Keeping up with Andy

The PowerPC partners have actually delivered on most of the ambitious agenda they laid out when the alliance was formed almost five years ago. (We'll overlook the original 603's disappointing performance. That problem was fixed relatively quickly with the 603e. As for the continuing debacle of the 620, it was never intended to run the Mac OS.)

But even excellent execution has not given the PowerPC the clear-cut performance lead once expected of it. Spurred both by the RISC challenge and by x86 cloners nipping at its heels, Intel Corp. has poured billions into defending its desktop dominance, and it has succeeded beyond almost anyone's expectations. Partly by deft design but mostly by aggressive adoption of cutting-edge production technologies, it has squeezed astonishing levels of performance out of an ancient and awkward architecture.

At least for the remainder of this year, though, it looks as if the initiative is passing to the PowerPC camp. While Intel is about to release a 200-MHz Pentium, that is expected to be the last clock-speed increase until the arrival of the next-generation Pentium, known as the P55C, late this year or early in 1997. As for the Pentium Pro, prices are falling but no new versions are expected this year.

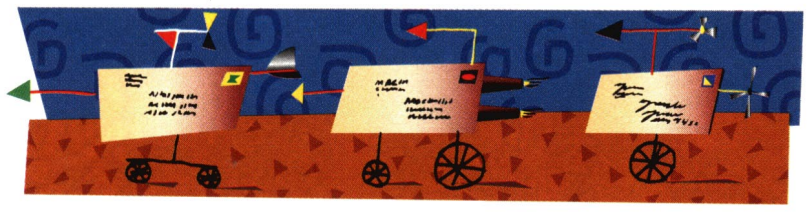
On the PowerPC side, in contrast, the coming months should bring rapid advances in performance now that IBM Corp. and Motorola Inc. are ramping up production of new versions of both the 603 and the 604. Motorola has already announced shipment of a new 603e generation running at 166, 180 and 200 MHz, and the 604e, featuring double-sized on-chip caches, should be available at similar speeds in another month or two (see 05.20.95, Page 4).

These new chips are based on a 0.35-micron process — comparable to what Intel uses for the Pentium Pro — and insiders seem convinced that there's plenty of room for further acceleration as IBM and Motorola get more experience with that technology. In fact, 604e chips running at 240 MHz have already been spotted in Cupertino, Calif. Nerds know clock speeds alone mean nothing when comparing architectures, but no one else seems to; in fact, the mass market has latched onto megahertz as a simple index of performance. It will be a pleasure to have more of them on our side for a change.

Challenges to come

Not that the PowerPC partners can now afford to relax. Motorola is reportedly still struggling to get acceptable yields on the 604 and 604e and to get its new MOS 13 fabrication facility into full production. Apple and its licensees have to deliver the new chips promptly, in well-balanced and reasonably priced systems. And the real challenge will come next winter, when Intel delivers the P55C and new Pentium Pros. □

Henry Norr, editor emeritus of MacWEEK, welcomes feedback in the MacWEEK forums on CompuServe or at henry_norr@macweek.com.



LETTERS

Things *not* to come

I must say I was quite astonished to see in MacWEEK a screen shot for a Mac product that was taken from an Intel-standard PC running Windows 95 (05.20.96, Page 14). The article, "Netscape puts VRML 2 on Mac," shows a picture of Netscape Navigator using Live3D to display a VRML 2.0 image.

Has MacWEEK decided that Windows 95 is a better publishing tool? I doubt it. Has MacWEEK concluded that the advances of the Internet have become such that computing platforms no longer matter? I wish. Or was it, as I suspect, to test how observant we Mac bigots truly are? Regardless, I hope that this is not a picture of things to come.

David Fordham, president
Summit Technologies Inc., Springfield, Va.

Fleeced!

I was delighted to see your front-page coverage of "Mac products gravitating to Internet World" (04.29.96). The first product mentioned, Net-Scene's PointPlus, was described as a Macintosh utility to convert and compress Microsoft's PowerPoint presentations for use on the Web. Imagine my dismay when I tracked down the PointPlus Web site. The site clearly indicates:

1. The plug-in is available only for Windows 3.1, Windows 95 and Windows NT.

2. The converter product (implicitly, for Windows only) will ship next month.

There is not even a single indication that they intend to offer a Macintosh product.

I would like to suggest that, perhaps, it is possible that the wool was pulled over your eyes, and your readers' eyes, and that a Windows-only product gained PR value through being on your cover.

Martin Haeberli, director of technology
Netscape Communications Corp.
Mountain View, Calif.

Engst's memory shortage

It surprises me that someone of Adam C. Engst's caliber would be caught grumbling about the amount of RAM an application takes up (05.13.96, Page 20). This reveals a bit of shortsightedness on his part. It seems to me that someone who's spent any amount of time in the computer industry would realize that computer-associated measurements of things such as RAM, ROM, hard drive size, throughput, etc., have been increasing by orders of magnitude. I can remember just 10 years ago thinking that 4 Mbytes of RAM (OK, maybe 6 Mbytes) and a 40-Mbyte hard drive were all I would ever need. Now I'm up to 24 Mbytes of RAM and a 1-Gbyte hard drive with 1-Gbyte removables picking up the slack. This industry (and the Web browser market in particular) is in its infancy. If 8 Mbytes seems like a lot of space for a Web browser in 1996, imagine the state of affairs in 2006.

Nick Ketter, senior engineer
Crosstown Audio Inc., Atlanta

Java for cross-platform

On Apple's Web site, Michael Mace, Apple director of Mac platform marketing, says that the Mac's main problem is lack of compatibility. I heartily disagree with him when he says, in reference to the oft-cited similarity between Apple/Wintel and Beta/VHS videotape, that the best of both worlds would have been a "Beta machine that also played VHS tapes." Mr. Mace fails to realize that dual operation costs money that typical users don't have. If the Mac could run Windows without a coprocessor board, then he might have something.

There is, however, a way that Apple could achieve this goal: Sun Microsystems' Java. Here we have a language and a virtual machine that is truly compatible across all platforms. A Java program will run just as easily on a Mac, an Intel-standard machine or a Sun workstation, and you can still run Mac-native programs as well.

If I were in charge at Apple, I would do everything I could to promote Java and keep it open, not just as a network server tool, but as a general-purpose development system. Think of the savings for developers! No longer would we have to duplicate our software development for each platform; we could spend time debugging the basic software and, maybe, a couple of special-purpose libraries customized for each platform.

Paul Blase, systems engineer
DCS Corp., Alexandria, Va.

Mission possible

The first time I saw that "Mission: Impossible" Apple ad on television I jumped out of my seat. Wow! That is the best ad since 1984. I hated those Oliver Stone ads. If Apple keeps this up they can do the impossible!

Adam Chaney, AppleScript programmer
Keyinfo Services Inc.
Spring Valley, Calif.

How to contact MacWEEK

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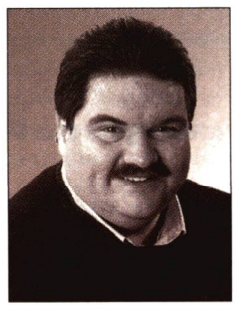
THE MAC MANAGER DON CRABB

The best Internet strategy for Apple starts with e-mail

I've got to stop watching "Late Show With David Letterman" while I'm writing this column. Here I am, trying to reflect on Apple and the Internet, while some guy is doing a Stupid Human Trick: blowing bubbles with a tarantula in his mouth. If a fellow can do that, I've got to believe that Apple can create and execute an effective Internet strategy.

Apparently Apple saw a preview of the same program and sprang into action. In an Apple Worldwide Developers Conference speech that had to be the best of his career, Apple Vice President of Internet Platforms Larry Tesler laid the foundation for the company's first Internet strategy. Although Larry stuck to a prepared script that lacked the visceral excitement of arachnids and soap bubbles, the performance proved that Apple knows something about how it can enhance the Internet and make money doing so.



With OpenDoc, the various flavors of QuickTime, Cyberdog and an announcement by Netscape Communications Corp. co-founder Mark Andreessen that the Mac OS would no longer be a second-class Navigator citizen, Tesler made a strong case for Apple's vision of the future Internet and how to get there.

But as good as many parts of that strategy might be, I was struck by one serious omission: any substantive discussion of how Apple will execute a new collaboration strategy in the wake of its official announcement that PowerTalk is finally dead.

And if it's going to work, Apple's Internet strategy must include workable e-mail as a basic system service.

In search of real e-mail

No matter how hot and sexy multimedia Internet content is, it's worthless without a serious e-mail component. E-mail drives business; it drives the small office, home office market; it drives education; it even drives home computing. Apple knows this. So does Microsoft Corp. So why has neither of them been able to build realistic e-mail clients into their operating systems?

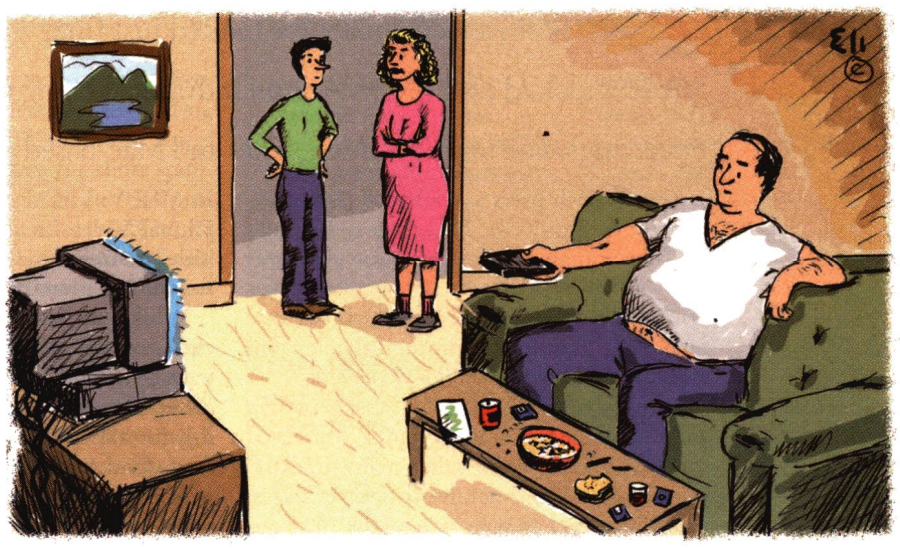
Before I hear from all the Cyberdogians out there, the e-mail in Cyberdog is not what I'm talking about. At best, Cyberdog mail shows the advantages of having e-mail closely linked to the OS and its services — especially when those services include OpenDoc. The actual capabilities of Cyberdog e-mail, however, don't even come close to what's needed in the Mac OS.

The client is king

Apple and its customers need a robust and autoconfigurable e-mail client as part of the next Mac OS release. This client would automatically configure itself to work with whatever sort of e-mail server (Post Office Protocol 3, QuickMail, cc:Mail, Lotus Notes) you use. It would understand all about Web objects, embedded content and all the rest. The client would be updated with new services each time the OS is updated. And it would evolve into a full-fledged Web access tool and be available as a system service in all applications, just like printing.

Consider: (1) Apple is the home of OpenDoc and Cyberdog, (2) Claris already publishes the excellent Emailer, and (3) Claris is part of Apple. Need I say that Apple should leverage these components into a robust e-mail client in the next Mac OS release? □

Don Crabb welcomes comments at his Internet address decc@cs.uchicago.edu. You can also check out his home page at http://cs-www.uchicago.edu/~decc/.

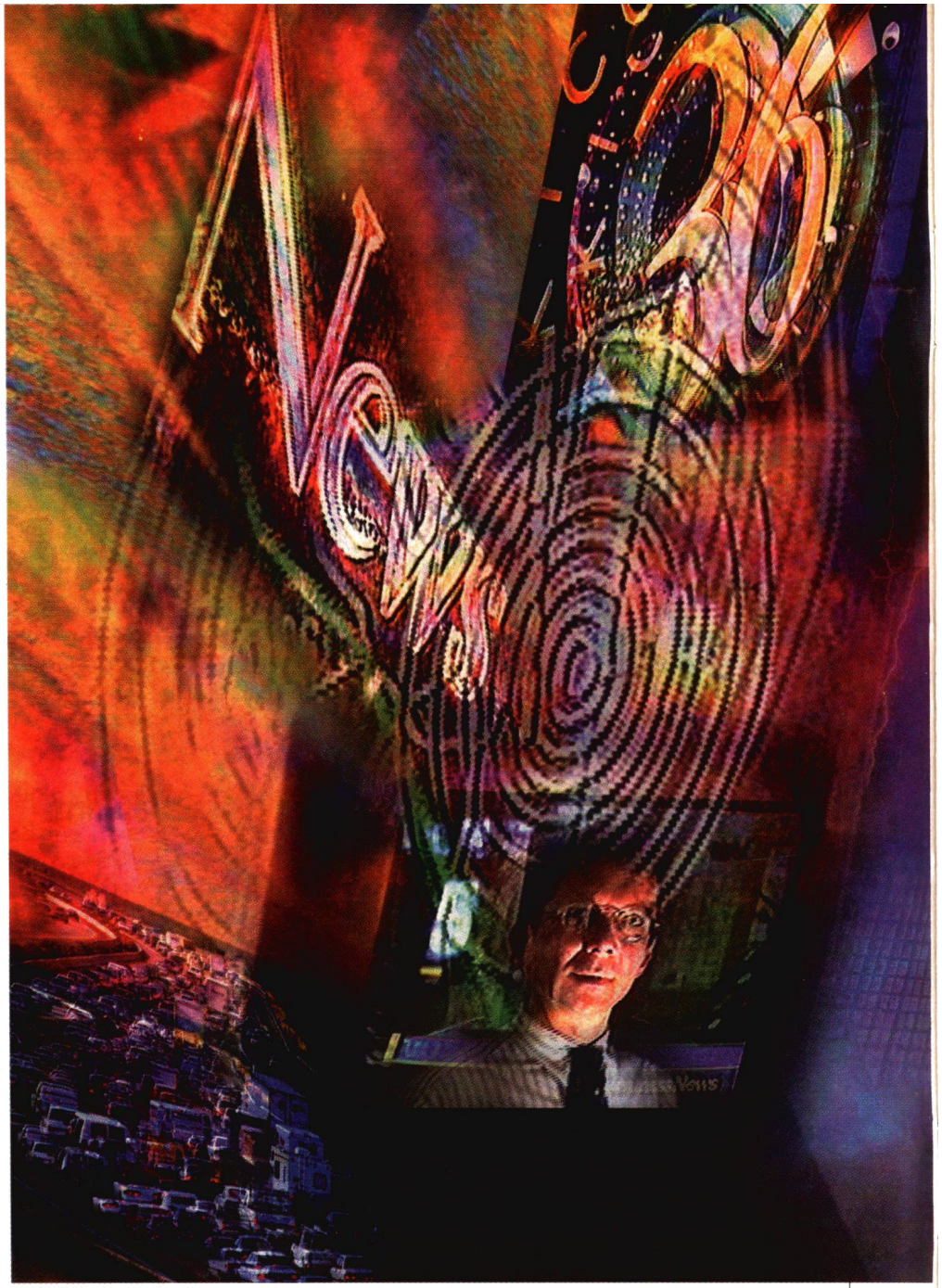


"It's worse than you think: A remote control for his computer."

Comments? Ideas? Contact Eli at elitoons@aol.com

MacWEEK Guide to Digital Video

Coast to coast the Mac is making its mark in TV studios — in editing, in creating special effects — and saving money. Here we look at Mac digital video in broadcast TV, examine the state of QuickTime, peer into CNN Headline News and comment on what Apple might do in the realm of digital video during the next year.



TARKKANEN & JACKSON

Video-editing systems ready for prime time

By Jeff Ubois

Back when videotape was introduced into television production, film purists derided its poor image quality. Yet to most television viewers videotape looked just fine, while to producers its low cost looked a lot better. A similar drama is being played out today between high-end analog editing suites and Mac-based digital video-editing systems, which users say offer 80 percent or more of the results for 20 percent or less than the cost of analog. Although some videographers still think these systems are not ready for prime time, users say their output is broadcast-quality — or at least indistinguishable from broadcast quality to most home viewers.

For local television stations, cable networks and even at the big three networks, Mac-based suites are making linear suites, many times the price of Mac-based nonlinear ones, obsolete. These new packages include Media 100 from Data Translation Inc., Media Composer and NewsCutter from Avid Technology Inc., ImMIX VideoCube/TurboCube from Scitex Digital Video Inc., VideoVision Studio and Telecast from Radius Inc., and Targa 2000 from Truevision Inc.

While independent video producers often choose to put together their own editing systems by combining boards and software from different vendors, many broadcasters are opting for the fully configured editing suites from Avid, Scitex and Data Translation.

In contrast to the Radius and Truevision products, which use QuickTime throughout, these systems rely on proprietary video formats internally for some tasks. Still, nearly everyone at this point uses QuickTime as a common language, enabling users to employ a wide variety of third-party editing and effects packages.

Video in

Digitizing — moving images from videotape to hard disk — is the one of the most difficult stages in the editing process. Video streams tend to be high-bandwidth, on the order of 3 to 9 Mbps. That means they rapidly fill available disk space and sometimes exceed the data transfer rate of SCSI drive arrays, resulting in dropped frames. But because the quality of the final product is determined by the quality of the original video stream, there is an incentive to capture at the highest rate possible.

Several techniques have evolved to balance the trade-off between video quality, storage space and disk transfer rates. One is to simply edit in short sections. Another is to do a relatively low-resolution capture of everything; edit in a low-resolution mode; and, once a "draft" is completed and approved, retrieve the clips in high-resolution mode using an edit-decision list.

"We shoot in the field with Betacam and Betacam SP and then digitize every potentially good clip in low resolution," said Bob Chesney of Irvine, Calif.-based Window on Wall St. Inc., which produces the PBS show "Window on Wall Street" and other programs using Data Translation's Media 100. "Then we edit, produce a low-res tape, get client approval, and then we go back and tell the system we want a high-resolution version."

For news shows, which tend to produce short segments, disk space is less of an issue, but the slowness of the digitizing process has led some to continue to rely on analog editing for stories on tight deadline that need only a few cuts.

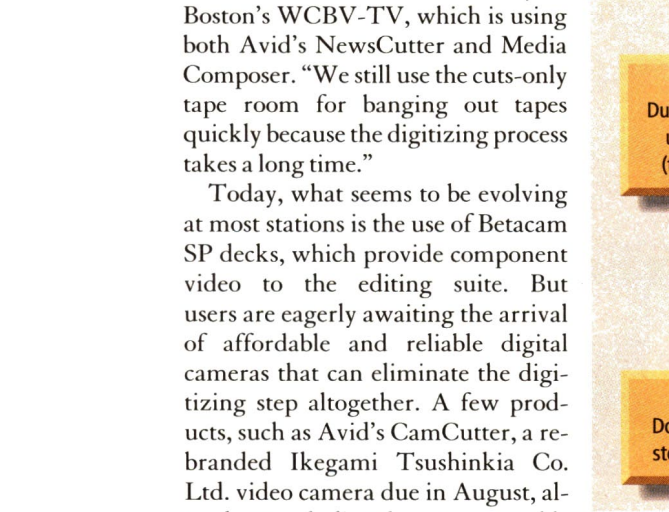
"Having to digitize, edit and then output from the NewsCutter takes too much time," said Jack Barry of Boston's WCBV-TV, which is using both Avid's NewsCutter and Media Composer. "We still use the cuts-only tape room for banging out tapes quickly because the digitizing process takes a long time."

Today, what seems to be evolving at most stations is the use of Betacam SP decks, which provide component video to the editing suite. But users are eagerly awaiting the arrival of affordable and reliable digital cameras that can eliminate the digitizing step altogether. A few products, such as Avid's CamCutter, a rebranded Ikegami Tsushinkia Co. Ltd. video camera due in August, already records directly onto removable hard disks.

Other professional-quality cameras that record directly in digital format, such as the DVCPro from Panasonic Communications & Systems Co. of Secaucus, N.J., are also gaining market acceptance. Panasonic is also promising a DVCPro field unit that will allow nonlinear editing, and Truevision has announced an agreement with Panasonic to support DVCPro.

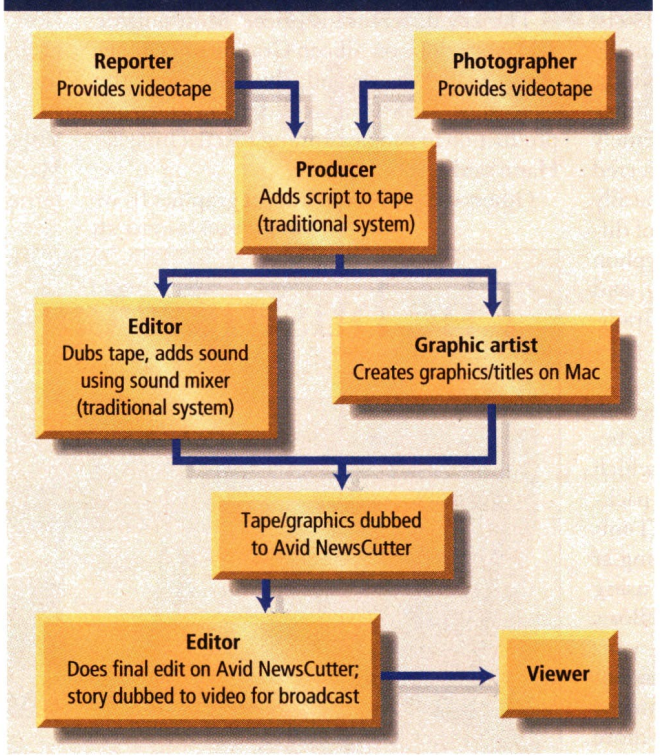
Decks with digital disk recorders (hard disks that can digitize at greater than real-time speed) will also help eliminate the long digitizing process.

Another promising set of products is based on the new IEEE 1394 standard, or FireWire, a high-speed digital interface that will be able to accept output from digital cameras and support such device-specific commands as starting and stopping camcorders and decks. Sony Corp. and others now sell digital cameras with FireWire output, while Apple; Skipstone Inc. of Austin, Texas; and others are promising the availability of FireWire PCI cards that will be able to accept video input in real time, allowing direct storage of video to disk.



Topping tonight's news: KTVK-TV's report on Arizona's first major brush fire of 1996 was edited using Avid's NewsCutter, a video-digitizing system. The NewsCutter also allows sound and graphics to be downloaded from the Internet and used in video clips.

KTVK-TV's NewsCutter work flow



Working with clips

After digitizing, the next steps in the process are viewing, cutting, combining and assembling clips; adding transitions, such as fades, wipes and dissolves; and adding effects, such as overlays, squeezes and rotations.

For some users, the biggest advantage offered by nonlinear systems is the ease of cutting and assembly. "We do documentaries, and these are built around sound bites," Chesney said. "If you are trying to build them in a linear fashion, that is like trying to rewrite your whole story every time you interview a new person. The nonlinear system lets us freely cut and paste and match clips in any sequence."

Nonlinear editing also provides better control over elapsed time. "With linear editing it's harder to tell how much time you've used," Chesney said. "With this, I can know that I've used, say, 14 minutes when I wanted to use seven, and then go back and make corrections by editing the sound bites internally."

Even better, Chesney is able to fine-tune clips to make them fit precisely into allotted slots. "With linear editing, if you wanted to trim a piece, it was easiest to take clips off the ends. Now I can cut from the middle of a clip," he said. That also allows him to tighten the focus by eliminating parenthetical or irrelevant comments.

For many users, Adobe Systems Inc.'s Premiere has become the preferred video-editing tool. Even stations with full nonlinear suites sometimes rely on Premiere for short spots. "Last year we won an award for the best produced [public service announcement] in the world, and it all was done in Premiere," said Dennis O'Neill, assistant news director at KTVK-TV in Phoenix.

Data Translation recently adopted Premiere as the primary interface for its new Media 100 qx system (see review, 05.20.96, Page 25), and that system has won points with early users, such as Showtime Networks Inc., a subsidiary of Viacom Inc.

New York-based Showtime is using a number of different products, including Radius' VideoVision and Telecast, and Data Translation's Media 100 and 100 qx. All told, Showtime has 30 digital video production workstations whose operators specialize in cuts and edits, graphics and effects, and assembling the four- to nine-minute breaks between movies.

"Eighty-five percent of production is doing cuts and dissolves, and Premiere and the Media 100 are clip-centric," said Dirk Van Dall, director of digital video at Showtime. "The main tools for us are the Adobe big four — Premiere, Illustrator, After Effects and Photoshop."

Adding effects

The other major part of the editing process is adding special effects, and all the editing-suite vendors offer graphics, animation, layering and other digital video effects capabilities.

The Avid and Scitex products provide real-time effects with multiple video streams. They also provide some 3-D effects, such as page peels and x-y-z rotations. (The Avid system requires an optional add-on.) For example, Avid's Elastic Reality provides a variety of morphing effects through an effects generator called TransJammer, which is essentially a library of stock morphing effects that also work with Premiere.

Data Translation is now offering FastFX, a library of effects that allows the use of Adobe Premiere plug-ins, and ColorFX, which allows adjustment of tint, brightness, contrast, solarization and other qualities. Data Translation users can also use Artel Software Inc.'s Boris Effects, which comes as a plug-in either for both Media 100 and Premiere, or in a slightly cheaper version for use with Premiere only.

Most users end up buying additional third-

See Video, next page

VIDEO-EDITING SOFTWARE

ADOBE SYSTEMS INC.
Premiere 4.2: $795
Mountain View, Calif.
(415) 961-4400 or (800) 833-6687

VIDEO-DIGITIZING SYSTEMS

AVID TECHNOLOGY INC.
CamCutter: Not yet released
Media Composer: $17,995 to $94,500
Media Suite Pro (for Power Macs): $7,995
NewsCutter: $42,900
Tewksbury, Mass.
(508) 640-6789
or (800) 949-2843

DATA TRANSLATION INC.
Media 100 (includes ColorFX and FastFX): $10,995
Media 100 qx: $7,995
Marlboro, Mass.
(508) 481-3700 or
(800) 773-1770

RADIUS INC.
Telecast: $6,399
VideoVision Studio 2.0: $2,999
Sunnyvale, Calif.
(408) 541-6100 or (800) 227-2795

TRUEVISION INC.
Targa 2000 NuBus: $5,495
Targa 2000 PCI: $5,795
Santa Clara, Calif.
(408) 562-4200 or (800) 729-2656

SCITEX DIGITAL VIDEO INC.
ImMIX TurboCube: $45,500
ImMIX VideoCube: $23,500
Grass Valley, Calif.
(916) 272-9800

Video

From previous page

party tools such as Premiere, After Effects, Photoshop, Illustrator and Macromedia FreeHand. After Effects provides tools for compositing and layering videos, filter effects and animation, and for extremely smooth playback for images transferred to video. Although Premiere is typically used as an editor, it also supports a host of different low-cost plug-ins, including Gryphon Software Corp.'s Dynamic Effects and Cinetic Mediantechnik GmbH's The Gradient Experience.

Special effects

At Showtime, effects tend to be used at the beginning and end of each segment, for which the company uses a number of different packages. "We're using After Effects, MetaTools Inc.'s KPT Final Effects, and are looking at Boris Effects," Van Dall said. "We're using Final Effects mainly for its filters and Boris Effects for soft shadows."

Others, such as Andy Hann, vice president and creative director at E! Entertainment Television in Los Angeles, use the Mac more as a tool for graphics and animation rather than cutting and editing.

E!, a cable network that focuses on the entertainment industry, relies primarily on After Effects, Premiere, FreeHand, Photoshop, Illustrator and Radius VideoVision Studio. These are used to produce all show openings and promos in-house. "When it comes to computer-generated graphics, the Mac is as good as anything out there," Hann said. "We are doing 70 percent of our on-air animations with the Mac, and it's hard to tell whether a given piece has been done on a Mac or a Henry [a high-end analog system from Quantel Inc.], particularly when you get it at home."

While most Macintosh-generated graphics are done in 2-D, Hann is beginning to use the Mac for some 3-D shots as well. "With lots of ray tracing and lighting, perhaps it will choke, but for most projects ElectricImage is really starting to catch up to the higher-end systems," he said, referring to Electric Image Inc.'s ElectricImage Animation System.

The key difference is price. "Most outside 3-D work done on Silicon Graphics machines costs $2,000 a second, but we get the equivalent for $400 a second by farming out production to people running ElectricImage," Hann said.

Others use the Mac to import graphics from other sources. KTVK's O'Neill frequently uses graphics downloaded from the Internet. "For example," he said, "we are doing a piece on air travel, and we just downloaded the airline logos."

After Effects and Photoshop are used to create promos such as these for E! Entertainment Television. One is for a morning show (top); the other is a general promo.

Video out

Mac-based video-editing systems grew up offering a variety of compressed and compara-

The business case for Mac video

ROB MUSTARD/BLACK STAR

Andy Hann, vice president and creative director at E! Entertainment Television, relies heavily on Macs for graphics and animation.

Making a radical shift in production tools is never easy. TV station and broadcast network managers who have opted for Mac-based nonlinear editing systems say that while, in retrospect, they obviously made the right decision, they often faced fear, uncertainty and doubt from others within their organization.

"It was a hard sell," said Jack Barry of WCBV-TV in Boston. "There were a lot of anti-Mac sentiments, and the engineers used to linear editing were against it. Some people feared that since it looks like a computer, anyone using a computer will now be a video editor. That won't happen — you still need editing talent."

Questions about broadcast quality have been solved in the Mac's favor. "Quality was borderline when we started looking at these systems two or three years ago, but now it is excellent," Barry said.

Others echo these sentiments and stress both creative and financial advantages of nonlinear systems. On the creative side, nonlinear systems put artists back in control.

"The most exciting thing about the Mac is that it puts the production back in the hands of the designers," said Andy Hann, vice president and creative director at E! Entertainment Television. "Before the Henry and Harry [high-end systems from Quantel Inc.], everyone was doing stuff on film. That was very hands-on, and the designer was part of the process, but then the Henry put a technician in the middle and made the whole process awkward."

By all accounts, the video quality of the current generation of Mac-based editors is excellent. Paul Greeley, director of marketing and promotion at WINK-TV in Fort Myers, Fla., said, "This looks as good as first-generation video, and besides, by the time you have edited tape on the air with a conventional system it is three to five generations down from the original."

Others noted that home video is already a fixture in many news broadcasts. "Given all the advantages of nonlinear, to say this little degradation is the reason to keep it out of the newsroom is foolish," said Dennis O'Neill, assistant news director at KTVK-TV in Phoenix. "Everyone is running home video in their broadcasts or Betacam that is several generations down from the original."

Mac-based systems also create a more subtle change in newsroom attitudes. "Now one person can have personal ownership of an element of the show, and that is a real change," O'Neill said.

The financial advantages tend to divide into equipment savings, increased productivity and reduced personnel costs.

For example, WINK has two ImMIX TurboCube/VideoCube systems from Scitex Digital Video Inc., each of which was purchased for less than $50,000. "At the time we bought our first ImMIX, we were about to build another tape-based production suite," Greeley said. "The ImMIX was less than the cost of just the Beta switchers we planned for that room, and we've also saved the cost of tech people and audio and tape operators."

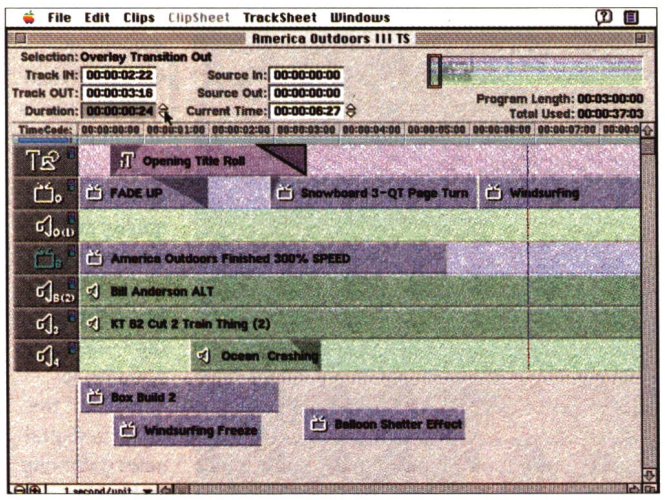
The superior image and effects provided by the ImMIX systems also give Greeley an advantage in competing for promo production jobs.

Bob Chesney of Window on Wall St. Inc., which produces the PBS show "Window on Wall Street," views it from a return-on-investment perspective. His company paid about $40,000 for an entire system that includes Data Translation Inc.'s Media 100 "compared to $250,000 for the [traditional] linear suite, and we've doubled our production capabilities without doubling our investment," he said.

Equipment savings are even more striking when comparing Macs with analog effects equipment. "We could buy one Henry and run all production through that, or with the same money buy eight Macs and have eight jobs running in production," Hann said.

Faster editing translates into reduced crew costs. "If I have to go through the control room with a piece, eight or nine people have to touch it, but with stories done on the Avid [systems], we've replaced a whole control room crew with three people," O'Neill said.

It's a win for promos, too. "We have one person who does about 200 promotion pieces a week, and that used to be a crew working two to three hours a day," O'Neill said. — By Jeff Ubois



Scitex Digital Video's ImMIX VideoCube provides video editors and producers with a complete digital-editing system.

tively low-resolution formats, but broadcast users typically take component video out to Betacam SP tape.

Broadcasting directly off the hard disk is still rare, but it's on the agenda at most stations. "When we are finished [with promos or news stories] we have to output from the ImMIX to Beta tape, but the obvious next step is to go all digital, to have a server that can find and play the clips we want," said Paul Greeley, director of marketing and promotion at WINK-TV in Fort Myers, Fla. "That's out there; it's just a bit expensive."

WCBV's Barry is also looking for direct-to-broadcast solutions. "We'd like to do direct-to-broadcast, but it's expensive, and the servers and buffers out on the market aren't really 100 percent there yet," Barry said. "Long term, yes, we will play video directly from disk, but we'll ship it over a network to a server and then to a buffer rather than playing from the Avid directly."

So while D-1 quality video, digital cameras and on-the-air playback from disk aren't yet mainstream, they are clearly on the way. As O'Neill said, "The revolution is over, it's just a matter of replacing the older machines." □

VIDEO-EFFECTS AND GRAPHICS SOFTWARE

ADOBE SYSTEMS INC.
After Effects: $1,995
Illustrator 5.5: $595
Photoshop 3.0: $895
Mountain View, Calif.
(415) 961-4400 or
(800) 833-6687

ARTEL SOFTWARE INC.
Boris Effects for Media 100 and Premiere: $695
Boris Effects for only Premiere: $350
Brookline, Mass.
(617) 566-0870

AVID TECHNOLOGY INC.
Elastic Reality: $349.95
TransJammer: $99
Tewksbury, Mass.
(508) 640-6789 or
(800) 875-4699

CINETIC MEDIANTECHNIK GMBH
The Gradient Experience: $129
Karkruhe, Germany
49-721-943-290

ELECTRIC IMAGE INC.
ElectricImage Animation System: $7,495
Pasadena, Calif.
(818) 577-1627

GRYPHON SOFTWARE CORP.
Dynamic Effects: $79
San Diego
(619) 536-8815 or
(800) 795-0981

MACROMEDIA INC.
San Francisco
FreeHand: $599
(415) 252-2000 or
(800) 326-2128

METATOOLS INC.
KPT Final Effects: $199
Carpinteria, Calif.
(805) 566-6200 or
(800) 472-9025

QuickTime 2.5: Here's what it looks like so far

By Daniel Rappaport

When planning its successor to QuickTime 2.1, Apple intended to dub it QuickTime 2.2. However, Apple decided its wealth of new capabilities warranted calling it QuickTime 2.5. Users can decide if that number is justified. (As of this writing, QuickTime 2.5 has not yet entered Apple's official beta testing period.)

QuickTime 2.5 represents a panoply of related media software, including its offshoots, QuickTime VR, QuickTime Conferencing, QuickTime Live and QuickTime IC (image capture). For instance, QuickTime VR is a set of authoring and playback tools that allow user-controlled interactive exploration of 360-degree vistas. Additionally, its playback mechanisms are built mostly via regular QuickTime code, as are other QuickTime offerings. This is a testament to QuickTime's inherent extensibility mechanisms, which continue and are further expanded in QuickTime 2.5.

Those who produce digital video on a professional basis may find many of QuickTime 2.5's new features attractive. For instance, Apple has given it more precise field control, including field labeling, extraction and combination. Professional digital video producers will find new, less costly tools that let them convert between different frame rates — from film's 24 frames per second to video's 30 fps, for example.

To date, many users have employed QuickTime for desktop video production via third-party add-in boards. (Or they use the Power Mac 8500, which requires no additional hardware.) Many of these boards make use of QuickTime's extensibility mechanisms combined with custom hardware to implement Motion-JPEG for video compression.

(Motion-JPEG, primarily a format from Apple, compresses each of a series of video images via JPEG. MPEG, a cross-platform format that can achieve greater compression, removes redundant information between frames and does not necessarily store each frame intact.)

However, some desktop video producers discovered a snag: The video they captured, compressed, stored or edited with one video-capture card was not always compatible with another vendor's card, even if both used Motion-JPEG compression.

Apple recognized this problem and sought to solve it. The company brokered a deal among the various Motion-JPEG card vendors and all have agreed on an interchange file format for Motion-JPEG. The interchange format comes in two flavors, Type A and Type B, to accommodate different Motion-JPEG compression chips. QuickTime 2.5 will be able to read either format and convert between them. Third-party video-capture cards will offer compressor-decompressors (codecs) to convert from their proprietary formats to one of the two Motion-JPEG file formats.

However, CD-ROM title producers or content producers wanting to deliver on the forthcoming DVD (Digital Video Disc) will need to use MPEG. Compression systems are generally expensive because each frame of MPEG-compressed video requires millions of calculations. Systems from The 3DO Co. of Redwood City, Calif.; Minerva Systems Inc. of Santa Clara, Calif.; and others range in price from $20,000 to $100,000 but offer real-time MPEG compression. Apple also offers an MPEG playback board, which plugs into the processor direct slot of several Macintosh models and provides full-screen playback of MPEG movies.

Rather than require a hardware board to provide MPEG playback, Apple will offer an MPEG software-based codec. Jonathan Knowles, QuickTime product manager, said this will be available shortly after QuickTime 2.5 ships, but the MPEG compression used by one vendor may differ slightly from another.

Apple's MPEG codec will allow cut, copy and paste of MPEG files, something rare with other MPEG playback systems.

Apple is now making QuickTime 2.5 multiprocessor-aware by using the Apple/DayStar MP extensions. For instance, if you're using a DayStar Genesis MP machine from DayStar Digital Inc. of Flowery Branch, Ga., you will be able to use extra processors to cut the compression time in half for Cinepak movies or help play back multiple streams simultaneously.

QuickTime 2.5 will offer a 3-D track that

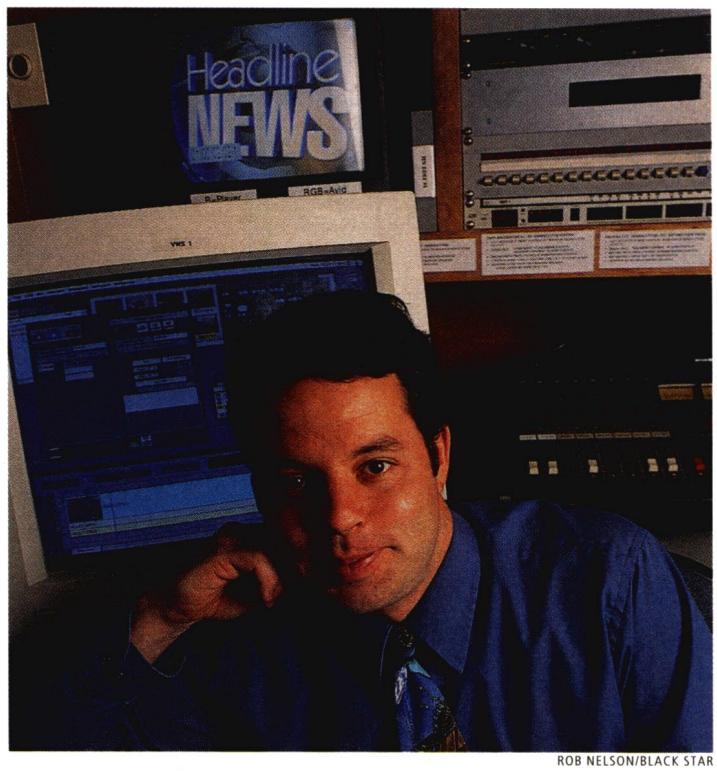
See QuickTime, Page 26

QuickTime 2.5 highlights

- Features for high-end video pros, such as field control
- Bundled with Netscape Navigator
- Common Motion-JPEG standards
- Software-based MPEG playback codec (to be released shortly after QuickTime 2.5)
- Multiprocessing benefits on multiprocessing machines
- Separate tracks for storing complex 3-D models
- API to develop new instruments and synthesizers

CASE STUDY

CNN news hounds use digital technology to report, edit, produce



ROB NELSON/BLACK STAR

Gordon Castle, director of operations and special projects at CNN Headline News, considered broadcast quality and training issues — along with a $3 million price tag — before deciding to implement the latest in digital news gathering technology in the Atlanta-based newsroom.

By Mark Baard

For science fiction fans, the phrase "journalists of the future" may conjure images of the clunky, intrusive mechanical men in a Philip K. Dick novel. But as described by Gordon Castle, director of operations and special projects at CNN Headline News, it's both a guiding principle and a pragmatic technological goal: news professionals making use of the latest digital news gathering technology to become producer, writer, reporter and editor all rolled into one.

Castle's participation in the successful launch of the digitally produced CNN Financial News Network, or CNNfn, served as an impetus for Headline's ambitious and costly migration from traditional tape-based technology to a server-based system, Avid Technology Inc.'s NewsCutter.

Digital news gathering systems such as Avid's leave videotape "upstream" in the production process. Tapes from the field are recorded digitally and stored (in Motion-JPEG format in Avid's case) on a network server. Stories are assembled and edited at client workstations (typically desktop computers with high-resolution monitors). The files are then broadcast by a technical director using a playback server.

The motivation

The move, Castle said, was also precipitated by "our desire to be on the leading edge of technology [and its application] in the broadcast world. It's also our goal to create the most efficient, flexible and creative work news environment in the world."

Castle and company had looked at other digital news gathering systems from Quantel Inc., Sony Corp., Business Technology Solutions Inc. and Tektronix Inc. In the final analysis they chose Avid because, Castle said, "it offered the most flexible and creative system."

Also, the Headline team considered broadcast quality issues. "We are going to go through a compressed video signal," Castle said. "We've been accustomed to full-bandwidth video. We wanted to make sure, when going into [Motion-JPEG] compression, we'd get a better video signal or at least as good a signal as we get today. Avid's Broadcast Video Board is delivering a high-quality broadcast signal. And because you're in the digital realm, there is none of the generation loss you experience through the traditional hardware-based systems."

Castle said he sees a parallel between his pioneering effort and the digital revolution that has taken place in print publishing. "I think this is very similar to what happened when you moved from [traditional] print publishing to [realize] a computer-based efficiency gain," he said. "Quality goes up when you don't forgo changes that you would have had to because of time constraints under the old system."

In the coming months, the Headline operations center in Atlanta will look more like an electronic pre-press and desktop publishing environment than a traditional, broadcast operation. Desktop workstations will replace many tape players and recorders, switchers, and digital video effects (DVE) units in the editing suite and the newsroom.

Similar to desktop publishing programs, the Avid NewsCutter has a point-and-drag interface, which can make the editing process less daunting for first-time users.

What's in the system

At the heart of the Avid digital news gathering system being installed at Headline are two Unix-driven Challenge servers — each with 150 Gbytes of hard disk space — from Silicon Graphics Inc. of Palo Alto, Calif. Each server, interconnected via a High Performance Parallel Interface (HIPPI), will connect to eight clients over a fiber-optic Asynchronous Transfer Mode network, for a total of 16 clients. Four of the 16 will be Avid AirPlay Media Processors, which are single-channel, rack-mountable, 100-MHz PowerPC-based playback servers. These are compatible with other broadcast equipment and use CCIR 601/SMPTE 125 sampling.

The remaining 12 clients will be Macintosh Quadra 650s, each loaded with 60 Mbytes of RAM, 230 Mbytes of internal hard disk space and 9 Gbytes of external hard disk space. In addition, each will sport a proprietary NuBus video board for handling the Motion-JPEG-compressed signal.

The Quadras will run Avid's NewsCutter video-editing software, which combines the functions of standard video production equipment with the time-saving advantages offered by nonlinear access to a digital signal, all through a point-and-drag interface. NewsCutter offers transition effects, including 32 different wipes, and motion effects such as variable speed and reverse motion, fit-to-fill, and strobe and freeze frames. It also provides for 28 2-D DVE patterns (for shifting and scaling images). As is the case with desktop publishing software for print, NewsCutter has undo and redo features (up to 32 edits) and the capability to import images from painting and illustration programs.

The outcome

The impact of this overhaul in Headline's operations and its $3 million price tag may be felt in terms of a lower head count at some point in the future. For now, though, the focus is on bringing people up to speed on the new system.

"There are two aspects to the training," Castle said. "For experienced editors, they'll be up to speed within a few days. For someone who knows how to edit, who understands video editing, the training on the Avid system is pretty straightforward."

But for newsroom reporters and editors in the field, training will be a greater challenge.

Last January, Mike Dolsak, Headline se-

See Case study, Page 26

Nelson needs to get on the net, Freiman can't find a file, and Peterson's forgotten his password. Again.

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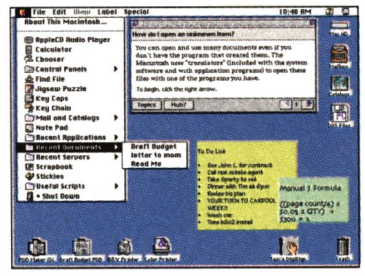

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QuickTime

From Page 23

can embed 3-D geometry information directly into a QuickTime movie. QuickTime 2.5 will combine these movies with 3-D by using the QuickDraw 3D interactive renderer or wireframe renderer. Since QuickDraw 3D takes advantage of any installed hardware accelerator, the drawing of these graphics will be accelerated as well.

Behavior for the 3DMF (3-D metafile format) objects is specified via another track Apple calls the "tween" track. Object animation is specified in the 3-D, track and QuickTime 2.5 uses the information to create the motion of the 3-D objects as the movie is played. The result is often a potentially much smaller file because the 3-D track stores only the objects and the motion, not the individual pixels displayed in each frame. However, QuickTime 2.5 may not easily represent all the complicated motion currently available in 3-D animation packages.

> QuickTime 2.5 will offer a 3-D track that can embed 3-D geometry and animation information directly into a QuickTime movie.

Other tracks

There are other alternative tracks as well. In addition to sampled audio tracks — similar to the digital audio data on a CD — there is a music track available (since QuickTime 2.0) that can store time-critical data for playing your score.

QuickTime 2.5 is compatible with Opcode Systems Inc.'s OMS and Mark of the Unicorn Inc.'s FreeMIDI for patching together MIDI devices. This addition will make it possible to seamlessly patch together MIDI devices, and Windows machines will be able to take advantage of it in the future. Apple said it expects this capability to include the use of native MIDI-compliant hardware. Previously, Apple had licensed 54 instruments for MIDI uses. Higher-quality, 16-bit MIDI instruments will be available from third parties, such as Yamaha Corp., as will synthesizers that replace Apple's own software synthesizer.

QuickTime on the Web

Apple and Netscape Communications Corp. have signed an agreement so that Netscape can include QuickTime compatibility in its browsers. Consequently, Webmasters will be able to create pages that also include QuickTime movies. The movies will automatically start playing when users access a page.

Apple is also developing a tool that preprocesses QuickTime movies for better Web usage, ensuring that information pertaining to length and size is transmitted first. This tool will simply rearrange the QuickTime file information so it doesn't take more than a couple of minutes to convert large libraries of QuickTime movies. On the receiving end, the QuickTime-enhanced Web browser will perform an on-the-fly calculation to determine when it has enough data to begin playing without later starving for more data. A long clip might not begin playing for 30 seconds or so on a slow modem line, but on a relatively fast connection it might begin playing after a second or two.

QuickTime 2.5 for Windows will not initially accompany QuickTime 2.5 for the Macintosh. This will appear later in the year, probably late in the summer. □

Case study

From Page 24

nior videotape supervisor, took a team of videotape editors to CNNfn's operations center in New York and spent the day "shadowing" their counterparts as they used NewsCutter in the edit rooms.

"Up until that point," Dolsak said, "we'd seen a lot of presentations [about NewsCutter] and stuff on paper. But it was only when we got to see it in use that we realized, 'Yes, this is doable.' "

Dolsak has since detected an increase in creativity and enthusiasm among his staff as it pulls together to learn the new system.

"What they're discovering," Dolsak said, "is that [using NewsCutter] is a heck of a lot easier. And they're already looking to get the most out the program."

The bad ol' days

About the only thing they miss about the old system, Dolsak joked, is "wrinkled and lost tapes and having to label boxes."

Part of the promise of digital news gathering, Castle said, is that "a large number of people are going to be given the tools that allow them to edit — [people who] have never edited video before. So principles like match frames, match-action cuts, the use of split audio-video, these types of editing concepts need to be taught to people used to writing text and used to doing on-air live production and so we are going through a massive cross-training." Castle said he thinks some will complete this type of training by the end of this year.

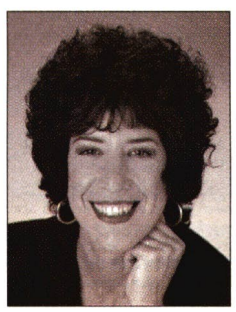
Clearly, as an "up-to-the-minute news source" and as the first network to migrate to digital production, the Headline team has every reason to proceed with caution. Castle, however, said he is interested in seeing a return on his $3 million investment in the Avid system and in reaffirming Headline's position as the technological leader in the broadcast industry. □

MACWEEK INSIDER ANITA MALNIG

Strike up the bandwidth

Power, power and more power. That's what digital video users want, according to a customer study Apple conducted last fall among its digital video customers and third-party developers under the direction of Dan Monahan, Power Mac product manager.

While I didn't get to see all of it, what I read gave me a sense of what these customers — professional and industrial producers who service commercial TV and cable programming as well as broadcast and corporate advertising — are looking for. They want improvements in performance and accessibility, and bandwidth is key: faster processing and better bus throughput, storage capacity and storage throughput. Specific complaints include too-slow rendering and compositing and cumbersome RAM access. Wish lists include four audio channels in and out as well as easier exchange of SGI files.



Monahan said Apple is addressing all these needs. "Within the next two years there'll be a drastic improvement in work flow; a faster PCI bus; more processing power; solid, good performance," he said.

Let's hope two years is fast enough.

I then talked with some of these customers myself, and I have to tell you: While they're looking for more power, they love their Macs. Video producers had good things to say — the elegance of QuickTime, the money-saving potential (and elegance, too) of Adobe Systems Inc.'s After Effects. They didn't care about quarterly losses, didn't care about market share. They cared about the fact that they could be more creative and productive on a Mac than on a Windows machine. I heard things like, "Try changing monitor resolution or removing a hard drive on a Windows machine without rebooting. I couldn't be as creative if I had to constantly think about rebooting my system." Or, "QuickTime for Windows is OK, but it's not mature."

> **Apple's success lies in its partnerships with third parties to offer integrated systems.**

But in a year or so when it is more mature, will Macs lose their edge? Perhaps not, if Apple keeps development going in other areas.

Apple says it now has 30 percent of the entire video post-production market (digital and analog), 50 percent of the audio market, and 60 percent of the Web and CD authoring pie. Can it keep it?

Part of the company's success lies in partnerships with third parties to offer integrated systems. For instance, that issue of removing a hard drive or array while your computer is running is really a big deal. You're in a final edit and notice a typo, and the file is huge. It's faster to remove the array, walk it down the hall to the machine running Adobe Photoshop, make your fix and return. John Cook, group manager of digital media systems at Apple, spoke well of third parties, such as FWB Inc. with its SledgeHammer Pro and MicroNet Technology Inc. with its DataDock, that have optimized their products for just such instances.

I think Apple is working hard — hardware and software divisions together.

The company has changed the bus arbitrator in the Power Macintosh 8500 to improve throughput, and it's pumping up QuickTime (see story, Page 23) to better serve the professional video market by including support for a fully interchangeable Motion-JPEG file format, for multiprocessing hardware, and for 3-D animations via the QuickDraw 3D engine.

But it's bandwidth, bandwidth, bandwidth that's the goal for the future. Let's hope it's in less than two years. □

Anita Malnig welcomes feedback at anita_malnig@macweek.com.

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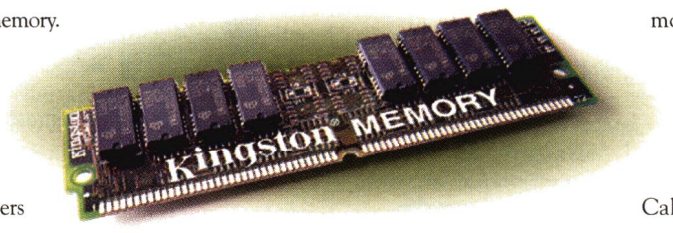

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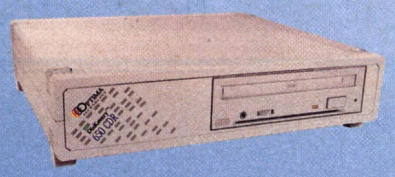

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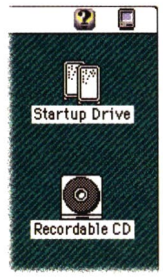

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IN THE BOARDROOM

Radius Inc. owns 19.9 percent of UMAX Computer Corp.; UMAX Data Systems Inc. owns the rest.

UMAX's S900L clone combines flexibility with compatibility

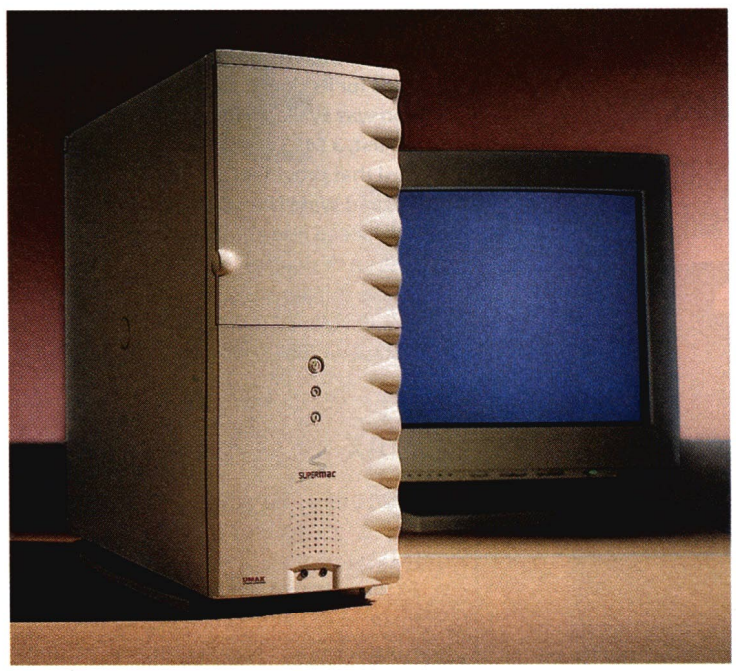
By Dale Coleman

SuperMac box to offer options for fast storage and networking, as well as dual processing.

If the pool of Mac clones consisted entirely of inexpensive knock-offs of Apple's original, it would be a dull place to fish. Since we're fortunate to cast our nets in a much better market, we weren't surprised that the SuperMac S900L, UMAX Computer Corp.'s initial Mac OS-compatible offering, combines compatibility, expandability, imaginative new features and a competitive price — giving it undeniable appeal as a high-end Mac.

The S900L tower system we reviewed, with an estimated street price of $3,995, includes a 150-MHz PowerPC 604 processor, six PCI slots, 512-Kbyte Level 2 cache, 16 Mbytes of RAM soldered on the logic board, eight DIMM slots that can accommodate up to 1 Gbyte of RAM, an Integrated Micro Solutions TwinTurbo-128M graphics card loaded with 4 Mbytes of video RAM, a 2-Gbyte hard drive and a remarkably fast 8x CD-ROM drive. The machine has five expansion drive bays and comes with an extended keyboard and mouse. UMAX also offers the S900D, a $3,095 model with no display card or hard drive, designed for resellers to configure.

UMAX Computer Corp., a subsidiary of UMAX Data Systems Inc., purchased the design and rights to the SuperMac name when it acquired Radius Inc.'s Macintosh clone license. This initial UMAX offering is aimed at graphics professionals, especially the digital video crowd. Two system options underline that point: a card for fast data transfer and a multiprocessor add-on. These were not available for review, however, and are scheduled for later shipment (see story, next page).



The SuperMac S900L tower from UMAX has an easily accessible internal design, which includes some features that are usually on the outside: You just have to open the front door to access the floppy or CD-ROM drives.

score card

SuperMac S900L

UMAX Computer Corp.
Estimated street price: $3,995
Overall value ♦♦♦♦

UMAX's parent company bought the SuperMac name and the design for a high-end Mac clone from Radius Inc. The result is the SuperMac S900L, a 150-MHz PowerPC 604-based clone with six PCI slots and five storage bays on a single bus with 16 Mbytes of RAM (expandable to 1 Gbyte) in a functional tower configuration. This is a very good choice for graphics professionals because of engineering advances, including optional dual-processor support, optional Fast Ethernet and Wide Ultra SCSI-3, fast PCI-to-PCI slot transfer, and an accessible tower design.

Performance ♦♦♦♦
Features ♦♦♦♦
Configuration ♦♦♦♦♦
Compatibility ♦♦♦
Documentation/support n/a

Key ♦♦♦♦♦ *Excellent* ♦♦♦♦ *Very good* ♦♦♦ *Good* ♦♦ *Fair* ♦ *Unsatisfactory*

Under the hood

Because of the S900L's Power Mac 9500-based design, providing the slot for a second CPU required a bit of creative engineering that gives the UMAX PCI bus a slight performance edge in demanding situations. The 9500 PCI bus is actually two buses of three slots each that have their own controller. The S900L uses a single controller and a PCI-to-PCI chip. UMAX says this improves card-to-card communication by obviating the need for data to detour through main memory, as in the case of the Power Mac 9500 when two cards are on different buses.

Digital video applications could be designed to take advantage of this feature. As a test we used a dual SCSI array from FWB Inc. on a Power Mac 9500/132 and an S900L. We installed the SCSI cards in different slots and ran a MacBench 3.0 disk test designed to reflect graphics-application use. On the 9500 the array was slightly slower at some tasks — but not all — when the two SCSI cards were on different banks of the SCSI bus. The results on the S900L were consistently uniform regardless of the PCI slots used.

Overall performance as measured with MacBench 3.0, developed by Ziff-Davis Benchmark Operations, held no major surprises (see chart, next page). The S900L achieved scores well within the range defined by Apple's Power Mac 9500/150 and Power Computing Corp.'s PowerCenter 150. The 8x CD-ROM was a standout, scoring 40.1 compared with the 13.2 score mustered by the 4x drive in tests designed to reflect typical business CD-ROM usage.

Easy access

Visually, there's no mistaking the new UMAX tower for its competitors, which present a dull appearance by comparison. With the possible exception of the hinged door, which hides the drive bay, form follows function. Sound-in and -out jacks are easily accessible on the front of the box.

One side of the case opens to reveal an internal design that is a welcome relief for anyone who has endured disassembling a Power Mac 9500 to add or remove

See UMAX, next page

IN BRIEF

In Control 4.0.3

Attain adds minor changes to ease organizer's data entry

Overall value ♦♦♦

When Attain Corp. released Version 3.5 of its venerable organizer In Control, it added the important new feature of workgroup access for user-selected data. In contrast, Version 4.0 marks only a minor refinement to the product's workgroup features, interface and calendar, despite its major release connotation. The $85 product now also boasts Internet links, drag-and-drop support and a new feature for bringing information into the application.

Like other outline-based information managers, such as CE Software Inc.'s WebArranger (see 04.15.96, Page 42) and Chena Software Inc.'s InfoDepot (see 09.12.94, Page 37), In Control 4 has latched onto the Internet by incorporating support for URLs (uniform resource locators) and Netscape Navigator's Bookmarks format. Unfortunately, In Control imports bookmarks as attachments to rows, making it difficult to use them in other programs that recognize dragged URLs. We'd rather the URL be placed in a separate column, in the same way the program handles comments.

Dragging the net

In Control's data-entry features have always been rich, but now they are further enhanced with the proprietary Clip-It feature and support for drag-and-drop. For text, In Control showcases its drag-and-drop capabilities well. You can drag text selections within windows, between the calendar and outline views in the program, or from In Control to any other application that supports drag-and-drop. By this

See In Control, Page 32

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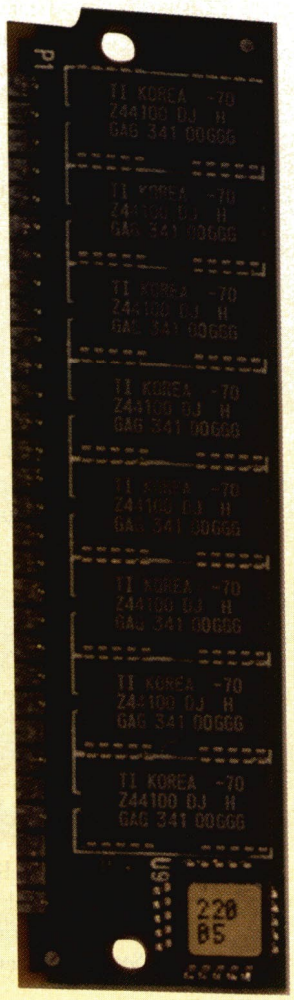

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BOTTOM LINE DISTRIBUTION

UMAX clears the way for major upgrades

A clear upgrade path is nothing new to the Mac platform, but UMAX Computer Corp. is advancing this practice to a new level with two significant options for its clones. Neither option was available for review.

First, a $495 combination card that provides Fast Ethernet and Wide Ultra SCSI-3 will help speed huge graphics data files on their way. The card, due to ship later this month, was developed jointly by UMAX, Asanté Technologies Inc. and FWB Inc. UMAX modified one of the S900L's PCI slots with an additional plug to accommodate this card. (This special slot can also accommodate standard PCI cards.)

Second, a $995 upgrade card can transform the S900L into a multiprocessor machine that supports the API standard developed by Apple and DayStar Digital Inc. Due to ship in July, this relatively inexpensive upgrade is made possible by a second processor card slot for a UMAX proprietary processor card. This lets users retain their initial investment rather than replace the single CPU card with a multiple CPU board, as with DayStar Digital's Genesis MP series. Those most in need of the performance boost available with this style of multiprocessor support should note that the S900L maxes out at two processors, while the Genesis MP series can accommodate four processors.

The clock speed of the second UMAX processor board must match the speed of the first card. Although the S900L can, according to the company, support 604 PowerPC chips at up to 250 MHz, UMAX machines with these faster chips will not initially be available. Thus Power Computing Corp. remains king of the clock-speed hill on the Mac with its 166-MHz and 180-MHz Power Towers (see 04.29.96, Page 1). — By Dale Coleman

UMAX

From previous page

DIMMs. The layout assures that everything is accessible, including the eight DIMM slots.

PCI cards are secured by screws, so they remain seated when you plug in or remove a cable. Overall the layout is quite similar to the Genesis MP from DayStar Digital Inc., but it has proportions similar to a 9500 or a Power Computing tower. The S900L comes with two fans, including one in the power supply, and provisions for a third fan to be installed with a second processor card.

The bundled software consists of the operating system (Version 7.5.3L on the review unit); Asanté Technologies Inc.'s NetDoubler, which boosts file transfer speeds; FWB's disk drive software; and Casady & Greene Inc.'s Conflict Catcher 3.0.

Since the S900L is the first product of this new corporate child of UMAX Data Systems, we can't pass judgment on the company's support policies. The company will contract out technical support, which is a standard practice. UMAX Mac OS computers will be sold through traditional retail channels, so the front line of support will be only as good as the dealer.

Although UMAX Computer and the SuperMac S900L are new, the parent company should have both the financial resources and the manufacturing experience to back this new venture and its products.

Conclusions

A genuine Apple Power Mac 9500/150, configured similarly to the SuperMac S900L, costs about $4,800. That's a 20 percent premium for the Apple logo. If that somewhat tarnished symbol is meaningful, the extra money is well spent — but we think this machine makes Apple's products look less exciting than ever.

At the other end of the price spectrum, Power Computing's PowerCenter 150 sells for $2,995 (see 04.29.96, Page 1). The extra $1,000 for the S900L buys you UMAX's engineering refinements, such as a straightforward path to multiprocessing, the optional fast networking and Wide Ultra SCSI-3 card, PCI-to-PCI bridge chip for faster transfer between cards, and the easily accessible and functional tower design. If you want a good, fast business machine, Power Computing's might be a better choice, but if you're a graphics professional who demands more power, the extra $1,000 is money well spent.

By objective measurements performed in MacWEEK labs, the S900L proved itself the equal of the 150-MHz offerings from both Apple and Power Computing. Factor that with the functional, accessible design of the tower itself and the engineering improvements — especially the no-risk upgrade to multiprocessor support — and the result is arguably one of the best graphics Mac OS configurations available.

UMAX Computer Corp. of Fremont, Calif., can be reached at (510) 226-6886 or (800) 232-8629; fax (510) 623-7350; info@supermac.com. □

MACWEEK MACBENCH 3.0 LABS

SuperMac S900L from UMAX Computer

UMAX's first offering, based on a 150-MHz PowerPC 604, holds its head high in the company of 150-MHz models from Apple and Power Computing.

Power Mac-native CPU speed

Processor Test	6100/60*	Higher score is better
SuperMac S900L		30.70
Power Mac 9500/150		31.86
PowerCenter 150		31.31

Graphics speed typical of general-purpose software

Graphics Mix	6100/60*	Higher score is better
SuperMac S900L		52.99
Power Mac 9500/150		48.53
PowerCenter 150		29.87

Processor speed in decimal math

Floating Point	6100/60*	Higher score is better
SuperMac S900L		30.10
Power Mac 9500/150		29.77
PowerCenter 150		29.65

Disk speed typical of general-purpose software

Disk Mix Test	6100/60*	Higher score is better
SuperMac S900L		19.89
Power Mac 9500/150		18.34
PowerCenter 150		23.53

Graphics speed typical of QuarkXPress and Adobe Photoshop

Publishing Graphics Mix Test	6100/60*	Higher score is better
SuperMac S900L		42.38
Power Mac 9500/150		35.81
PowerCenter 150		34.88

Test configuration: All machines had 16 Mbytes of RAM and 512-Kbyte Level 2 caches. The SuperMac S900L and the Power Mac 9500/150 each had 4 Mbytes of VRAM on an accelerated display card; the PowerCenter 150 had 1 Mbyte of VRAM.

All tests run under System 7.5.3 with only standard extensions loaded, virtual memory off and Modern Memory Manager on. Displays were set to eight-bit color at a resolution of 640 by 480 pixels.

*MacBench's scores compare speed to a Power Mac 6100/60, which receives a 10.

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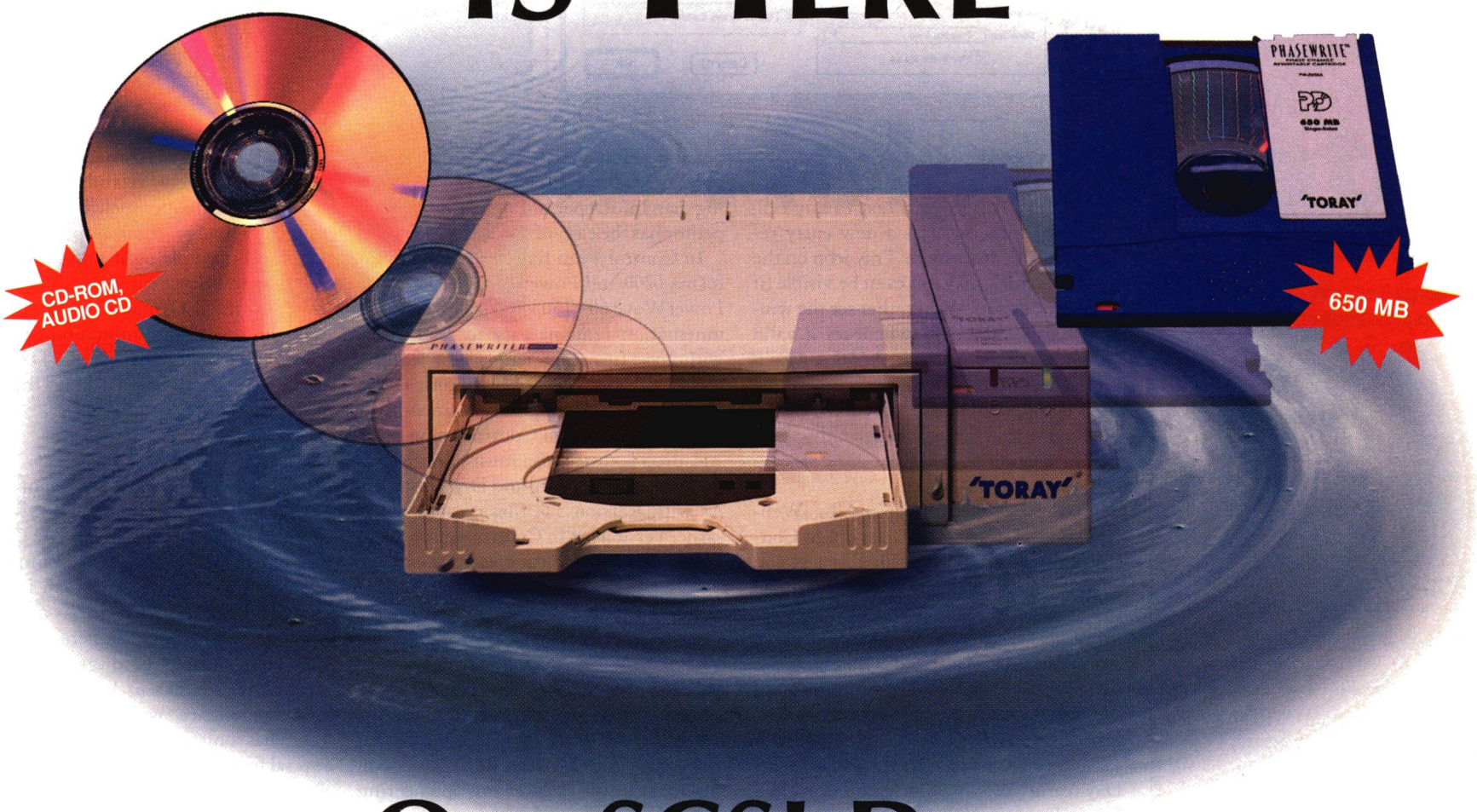

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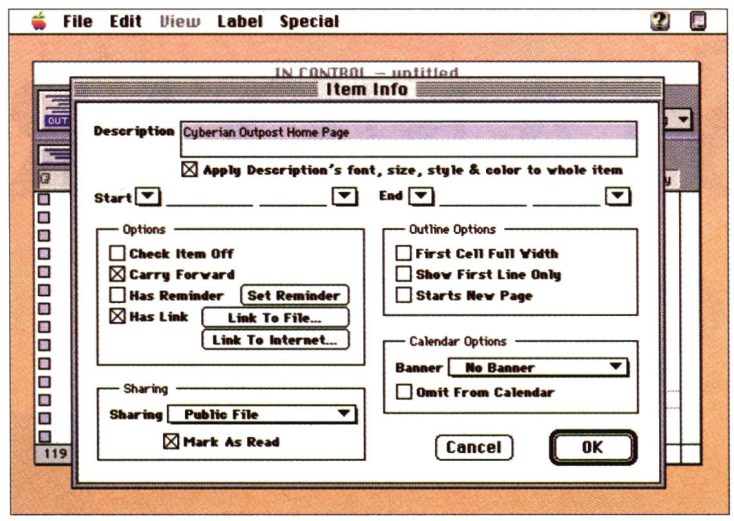


The new Item Info window in Attain's In Control 4.0 lets you see all relevant information regarding a cell and provides easy access to attached files and URLs.

In Control

From Page 29

method, it's easy to add text to any cell; however, dragging it as a new entry requires hitting the tiny In Tray icon on the tool bar, which may not even be visible (if you've hidden it). We'd rather see the window border highlight whenever a valid clipping is dragged into it. Another caveat is that In Control items such as outline rows (as opposed to text selections) can be dragged within the application only.

Clip and save

The Clip-It feature, inspired by WebArranger's Grabber, requires the In Control Reminders control panel. It lets you add a text selection to an In Control outline by typing the nonconfigurable hot key Command-Option-C. If an In Control file is open, the item is inserted at the end of the file's outline. Otherwise, it is retained until the next file is opened, even if the computer is restarted. This approach is, in some ways, more flexible than the QuickDay feature of Now Software Inc.'s Now Up-to-Date, in that QuickDay must be tied to a specific file. Whether they are dragged or clipped into In Control, times and dates within selections are used as an item's start date, and URLs are automatically attached.

Other improvements include new reminder sounds, better font support, selective deletion of recurring events, event rescheduling and a comprehensive Item Info dialog box. Shared columns now display an icon to remind you of their public status.

Force vs. finesse

Compared with InfoDepot, In Control remains underpowered. While the former's cells accommodate linked files, graphics, scripts, formulas and Gantt charts, the latter's can hold only text and linked files. InfoDepot boasts extraordinary scripting support, but In Control barely supports Apple events, although its Lookup feature may be more approachable for the average user.

In its favor, In Control boasts a clearer interface, slicker calendar integration and a higher emphasis on presentation and final output. While we are willing to sacrifice some features for ease of use, we wish Attain would expand the product's horizons to include basic math features and possibly Gantt charts. In Control also provides more flexibility in workgroup sharing than InfoDepot, although here its competitor has the ease-of-use advantage.

In Control 4 ran flawlessly on our Performa 6200 and Power Computing Corp. PowerWave 604/150. The program's documentation remains easy to read, filled with good tips and a handy new features guide. When contacted by phone, representatives fielded support calls smoothly.

To use some of In Control's new drag-and-drop features, you must have System 7.5 or Macintosh Drag and Drop installed. As with Version 3.5, files created under earlier versions of In Control must be converted to work with the new version.

Conclusions

After a brief detour, Attain is back on track with In Control 4, polishing its core features and making sensible additions while retaining its overall ease of use. However, a broader array of supported data types and some fresh organization methods would make this pioneering planner seem forward-looking again.

Upgrades from earlier versions are $34.95.

Attain Corp. of Somerville, Mass., is at (617) 776-1110 or (800) 925-5615; fax 617-776-1626; info@attain.com; http://www.attain.com. — *By Ross Scott Rubin*

Bryce 2.0

Terrain generator offers frustrating path to 3-D

Overall value ♦♦♦

When we reviewed the 1.0 release of MetaTools Inc.'s Bryce, we called it a time-waster of staggering but seductive proportions. Amply justifying its integer leap, Version 2 boasts a slew of new features and performance tweaks, comes with a redesigned interface, and runs native on Power Macs. Thus, the $299 application lets you waste more time in more ways than before, and do it faster than ever.

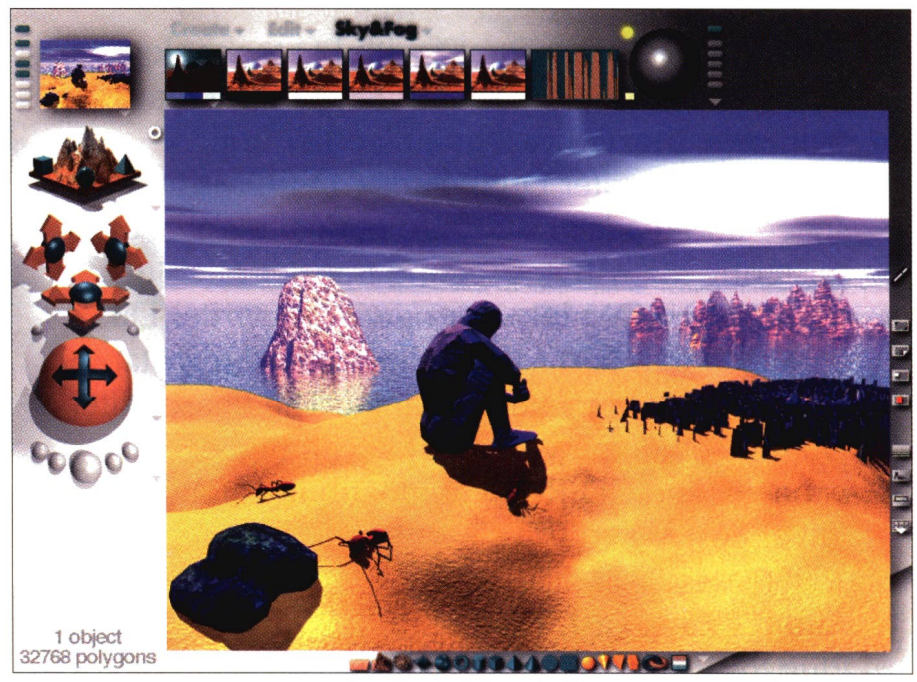
Still exclusively a landscape creation tool, new capabilities such as DXF (Drawing Interchange File) import, Boolean tools and multiple light sources dramatically expand Bryce's horizons and move it closer to the 3-D mainstream. Add real modeling tools and animation capability and you'd have a full-fledged 3-D application. (MetaTools says it will do this in an upcoming "SuperBryce.")

Up front

Bryce 2's visionary interface is more cohesive, less cluttered and more effective than Version 1's (see 08.15.94, Page 29). Camera controls, for example, are much improved. However, those who believe an interface should be seen and not heard — or, for that matter, that it should adhere to Apple's guidelines — may be disgruntled. Bryce steadfastly declines to let users leverage their experience with other programs. Form has sometimes dictated function, and several features, such as texture editing, are awkwardly implemented. Some interface decisions appear to have been made by denizens of one of Bryce's sci-fi worlds.

At Bryce's core is a powerful terrain modeler that creates height maps out of gray-scale images. You can import PICTs

See Bryce, Page 34



Now that MetaTool's Bryce 2 imports DXFs, you can look to other 3-D programs or commercial sources for models — such as the human figure and ants shown here — to bring into your scene.

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Job# 13870-2 **$18-30/hour**

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Must know Basic, UNIX, Cobol, Novell, be able to support MS Office Suite, and have general hardware knowledge.
Job #844 **$40-50/hour**

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Job #820 **$30K/year**

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Technical Support
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Houston, TX (cont.)

Technical Support
Nationwide company is looking for Macintosh/PC technical support specialist. Must be familiar with Novell networking and experience with Macintosh end user support.
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Irvine, CA

Mac Programmer
Program in C, C++. Job requires B.S. in Computer Science or Computer Engineering or 3 years on the job experience. Hi-tech environment; 45 employees.
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Multimedia Developer
Heavy Authorware knowledge mandatory for communications firm in Montgomery County area for 2-3 month position.
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Tech Support Specialist
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Job# 5687 **$34-35K/year**

Phoenix, AZ

Database Programmer
Entry level position. C and C++ in Mac and DOS environments. 4D experience a big plus.
Job# 1112 **$30-40K/year**

Tech Documentation/System Support
Customer service and Mac system support of hardware & network. Create documentation for custom database software.
Job# 1113 **$30K/year**

San Francisco, CA

Mac Systems Administrator
Troubleshooting, hooking clients up to server, configuring laptops, update software. 20 user base, can grow to 100. End users work with Word, Excel, FileMaker Pro, ARA.
Job# 6844 **$18-25/hour**

PC Windows Support Specialist
H/w & s/w installation, configuration & optimization. DOS, Win 3.1, Win 3.11, Win 95, NT client & server, some Mac. Memory configuration. Install devices (hard drives, SCSI devices, network cards, sound cards, video adapters, disk controllers, PCMCIA cards and appropriate drivers). Set up following protocols: NetBEUI, TCP/IP, RAS. Resolve end user desktop problems.
Job# 6801 **$30-40K/year**

Technical Support
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Seattle, WA

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Software Localization Engineer
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Job# 5488 **$35+/hour**

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Seattle, WA (cont.)

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Mac Programmers
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Job# 4284 **$25-40/hour**

PC/Windows Support Specialists
Support end users. Troubleshoot, maintain, upgrade, install h/w, s/w and peripheral devices for firms around the South and North Bay. Experience with Compaqs, Toshiba laptops and Chameleon TCP/IP a plus.
Job# 4374 **$17-20/hour**

Technical Support
Support customers using communications software that bridges platform connectivity issues. Internet knowledge necessary.
Job# 4286 **$15-17/hour**

Mac Specialist
WinNT, Sun and UNIX experience needed too. Troubleshoot all technical issues. Also HTML programming (HTML tagging, Java and CGI scripting). Ability to manipulate video and digitize a plus. Needs to be outgoing and have a good sense of humor.
Job# 4376 **$40K/year**

Help Desk
Mac/PC platforms, though mostly Mac. Must know Windows s/w packages and have previous help desk experience. Good customer service skills are a must! Could go perm.
Job# 4055 **$16-18/hour**

Silicon Valley, CA (cont.)

Systems Specialist
Mac and PC, UNIX a plus. Install and troubleshoot h/w, s/w on Mac and Windows stations. Work with help desk to resolve tech issues and research/test any new systems.
Job# 4055 **$15/hour**

Technical Support
Troubleshooting and configuring. Must know graphics peripherals. Good phone skills: 6 hours on, 2 off. Premiere experience a plus. Possible temp to perm.
Job# 4298 **$17-20/hour**

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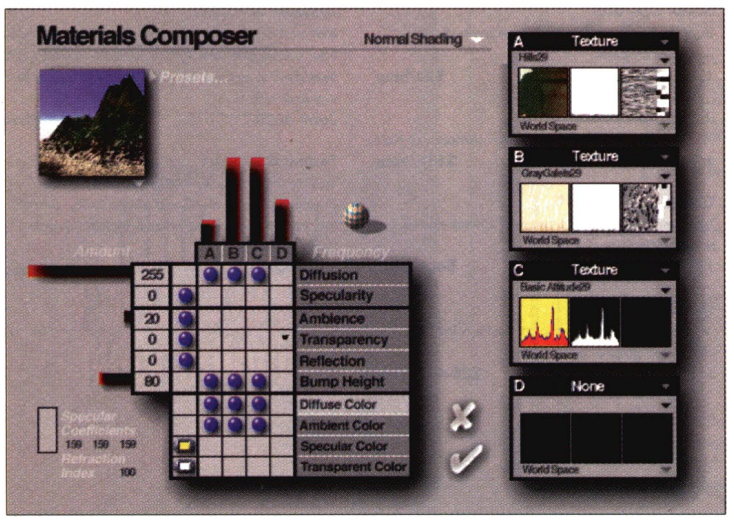


Bryce 2's revamped Materials Composer is slick, powerful — and more difficult than it should be.

Bryce

From Page 32

and modify Bryce's autogenerated maps with new gray-scale brushes and a variety of special tools, such as erode and cross ridges. Myriad topologies are possible, from rolling hills to crenelated ravines. A movable, shaded, 3-D preview now offers valuable real-time feedback. In fact, the entire module has seen major functional and aesthetic enhancement.

New shapes for old

Bryce landscapes are spectacular, but even Ansel Adams wasn't content with the basic land/sky/water theme. Users of Bryce 1 will appreciate the new plant shapes and random rock generator, but they'll really get excited over Boolean and DXF import capabilities.

Despite a bug or two, MetaTools' Boolean strategy exponentially increases Bryce's shape options. You can, for example, create complex, hybrid objects from the intersection of two primitives, or subtract a sphere from a mountainous terrain to simulate a cave. The ingenious render-based implementation results in a confusing lack of immediate feedback, but it makes up for this by leaving the component shapes intact; they can be moved or re-used later.

As for DXF, you can now import, say, a human figure from Fractal Design Corp.'s Poser into a Bryce scene, where it will cast shadows, reflect off surfaces and generally behave as a card-carrying member of the 3-D scene. DXF has inherent limitations, though, and we were disappointed by MetaTools' snub of the more-robust 3DMF (3-D metafile format) — although MetaTools promises partial 3DMF support this month. Nor are all DXFs equal in Bryce's eyes. Files from Specular International Ltd.'s Infini-D and Strata Inc.'s StudioPro didn't show up in the import navigation dialog box until we edited them in a word processor. When we tried to import one of the 23 included 3-D clip models from Viewpoint DataLabs International Inc., the program informed us there was insufficient memory to do so, despite a 38-Mbyte RAM partition.

Bryce's shading technology is in a league of its own. The generous selection of included procedural textures is awesome, allowing you to create realistic geologic formations, subtly stippled water, fluffy clouds and myriad other effects right out of the box. Want customized textures? The revamped materials composer supports up to four simultaneous channels, which can be any combination of algorithmic and PICT textures — if you can figure out the arcane and atrociously documented controls.

A valuable new feature is the capability to add multiple spot, point or parallel lights. You can control brightness, color, cone width and sharpness; apply gels; and toggle shadows and visibility. This makes it easier to control the appearance of your scenes.

> You can get beautiful results from Bryce 2, but be prepared to wait for them, as the ray tracer puts heavy demands on the CPU.

The bad and the ugly

We found some basic 3-D tasks, such as spatial alignment, inordinately cumbersome in Bryce. Is this tree behind or in front of that mountain? Wireframe previews without hidden-line removal — even anti-aliased, shadow-casting and depth-cued, as offered here — won't tell you. Nanoviews and patch rendering help, but they don't make up for insufficient preview options.

Also frustrating is object selection. Click-selection is awkward at best for 3-D work, and Bryce doesn't offer any reasonable work-arounds, such as a pop-up menu of objects available at the cursor location. As for the set-based selection options, we would gladly exchange the lot of them for a simple hierarchical list of scene members.

You can get beautiful results from Bryce, but be prepared to wait for them, as the ray tracer puts heavy demands on the CPU — as does the interface. Native-mode operation has certainly boosted performance over Version 1, when Bryce was known for its interminable renderings, but it's harder to gauge the improvement between 1.0.1 and 2.0 since key algorithms have been changed. Several scenes we imported from 1.0.1 actually rendered more slowly in 2.0; they also revealed more subtlety and nuance, particularly in water effects. The new Preview render mode offers a high-quality preview, but artifacts make it all but unusable for actual production work, and it is really too slow for simple previewing. Even the Textures Off option isn't fast enough for its intended purpose, in part because Bryce insists on anti-aliasing. There is no Phong option.

The official minimum system requirements are a Power Mac or 68040 with floating-point coprocessor and at least 8 Mbytes of free RAM. (Realistically, even the recommended partition of 16 Mbytes is low.) The program apparently runs — glacially — on a 68030, but Bryce is so CPU-intensive as to virtually demand a Power Mac.

The diminutive Explorer Guide and the CD-ROM-based Deep Features Reference Guide have more holes than fabric, and there are no tutorials whatsoever (the numerous included examples are helpful, however).

Conclusions

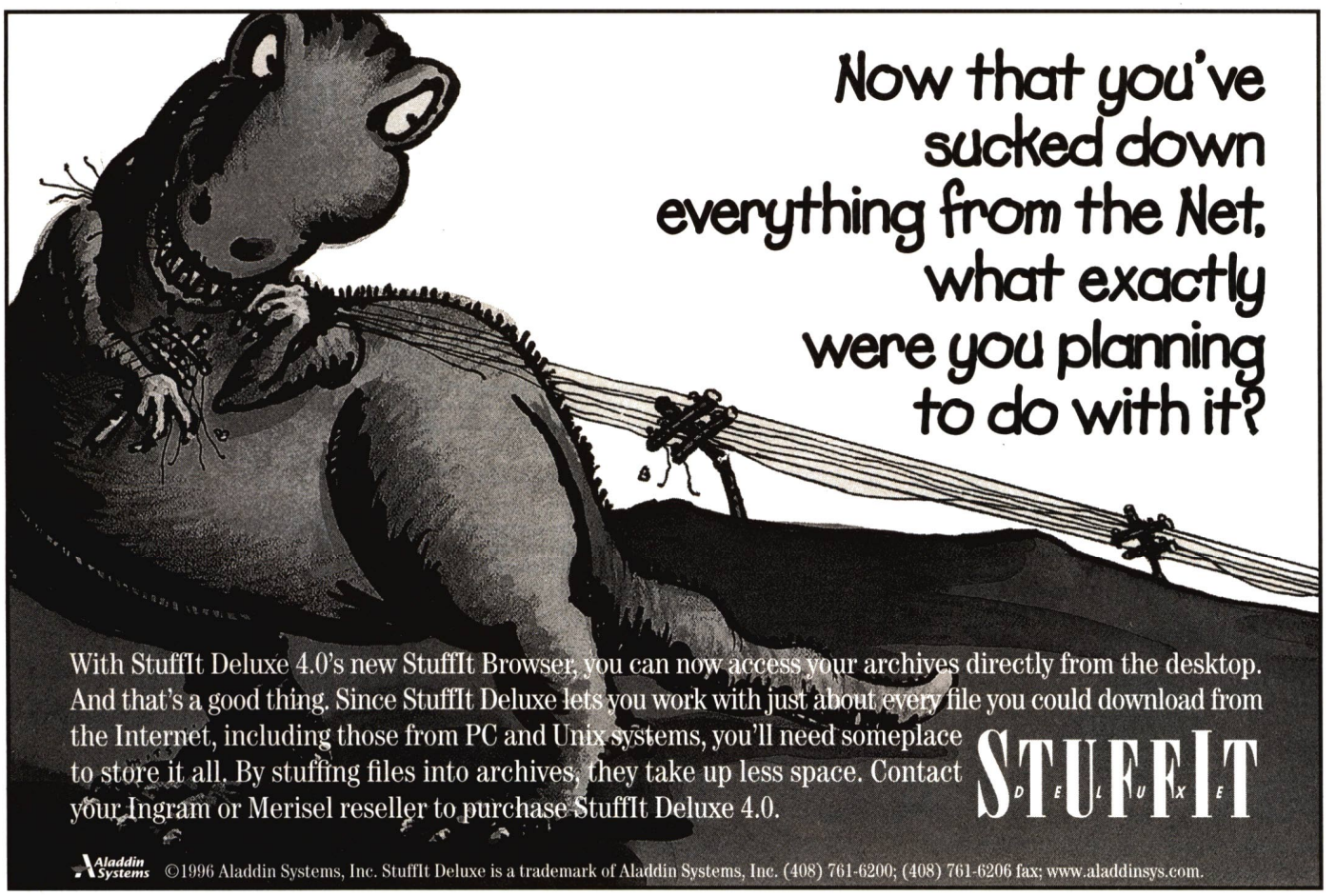
Bryce offers a visual feast from splash screen to output. The interface is seductive and clean — albeit idiosyncratic — and no other program we know allows novice and experienced users alike to create such sumptuous images so easily. Major enhancements make a strong case for upgrading and commend Bryce to an even wider audience than before.

But between the spare documentation and the idiosyncrasies, users will find themselves spending hours in a puzzle-solving, Mystian mode. Some may enjoy the challenge, but professionals facing a deadline will not be amused. MetaTools needs to decide whether Bryce is an entertainment title or a production tool.

The current combination of interface anomalies, inadequate documentation and bugs detracts significantly from the program's usability. MetaTools has promised a bug fix update along with a new manual by June; given the alacrity with which the company released a patch for the broken batch renderer, we believe it will make good on this promise. When it does, we will be able to recommend Bryce as enthusiastically as we would like.

Upgrades from Version 1 are $99.

MetaTools Inc. of Carpinteria, Calif., can be reached at (805) 566-6200; fax (805) 566-6385; http://www.metatools.com. — *By David Hauer*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ZIP IT UP

According to Disk/Trend Inc., 1 million Zip drives were sold between March 1995 and March 1996.

STORAGE

Service bureaus stock up on removable-storage options

By Larry Stevens

Asking an imaging service bureau what types of removable-storage media it has is a bit like surveying a supermarket to find out whether it stocks Coke, Pepsi or 7-Up. Service bureaus, like supermarkets, need to have on hand what their customers use, and for most companies that means supporting virtually all removable-storage media.

"We have every type of removable media known to mankind. When a customer asks for something, either we already have it or we buy it," said Bill Covington, technology manager at Laser Tech Color Inc., a Dallas-based pre-press house.

With Ethernet and Fiber Distributed Data Interface networks, the company doesn't have to move files by "sneakernet." As a result, Laser Tech no longer needs removable media for internal file transfer, only to share files with customers.

In Harrisburg, Pa., Dan Everard is the systems engineer for electronic pre-press in the Book Publishing Services division of R.R. Donnelley & Sons Inc. The division already has "almost everything" in removable media in-house, and "if someone calls asking whether we support a medium which we don't have, I'll usually say 'Give me 24 hours and I'll have it in here.' "

There are a few exceptions, however, to Everard's policy of buying whatever customers request. One of the division's customers already uses the new 2.6-Gbyte magneto-optical disks. The drives to read those disks can also read the older 1.3-Gbyte and 650-Mbyte, 5.25-inch cartridges, so Everard said he intends to eventually buy a few. However, he said he'd rather wait to see if prices drop and determine how many of his customers end up using the 2.6-Gbyte cartridges.

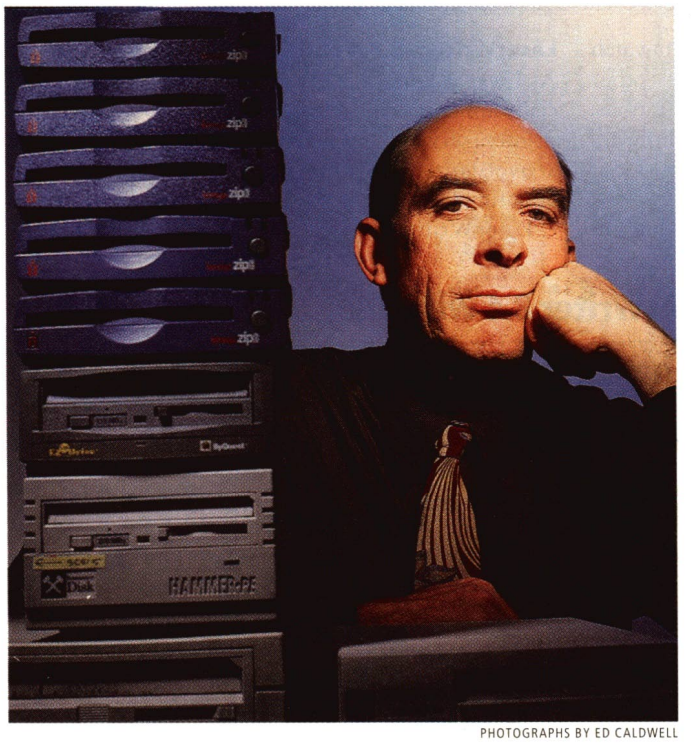
Like most service bureaus, Everard's division bought each type of SyQuest drive as it became available. Most of the time Everard uses 200-Mbyte SyQuest drives because they can read from and write to 44- and 88-Mbyte cartridges as well as 200-Mbyte cartridges. While he doesn't keep specific records, Everard said he guessed that most of his customers use the 88-Mbyte SyQuest simply because it has been around so long and has a large market share.

"SyQuest is still being used in larger quantity ... but it's being eroded by Zip at the lower end and Jaz at the high-end."

— James Porter, Disk/Trend Inc.

James Porter, an analyst with Disk/Trend Inc. of Mountain View, Calif., said: "SyQuest is still being used in larger quantity than anyone else because they have a larger share of the market, but it's being eroded by [Iomega Corp's] Zip at the low end and Jaz at the high end."

In fact, Porter said that SyQuest, located in Fremont, Calif., is being significantly affected by newer drives, most notably by the Zip drives.



PHOTOGRAPHS BY ED CALDWELL

Gary Wieneke of Andresen Digital Imaging in San Francisco estimates that 50 percent of his jobs come in on SyQuest cartridges, down from 90 percent six months ago, and 40 percent are now coming in on Zip drives.

Customer is king

Just as supermarkets stock the items people purchase, service bureaus take direction from customers. "Customers will direct a service bureau as to what they buy in removable media," said Ray Leach, president of Publishing Solutions Inc., an Akron, Ohio-based system integrator that helps service bureaus set up shop.

A service bureau starting out a year ago could probably get away with an 88-Mbyte SyQuest drive and, if it had a few extra bucks, a Bernoulli drive. Now, however, a bureau must have at least Iomega's Zip and a Jaz drive as well.

"With Iomega practically giving them away to service companies and their graphics customers, [the drives] are becoming very important in the market," Leach said.

The Zip drive costs less than $200, and the 100-Mbyte media are less than $15 each. The Jaz drives, which are not yet shipping in great quantity, have a street price of about $600, and the 1-Gbyte media cost about $125.

Earlier this year, to sweeten the pie for service bureaus, Iomega of Roy, Utah, launched its IomegaReady Imaging Bureau Program, which provides special support and pricing for first-time service bureau customers of Zip and Jaz drives.

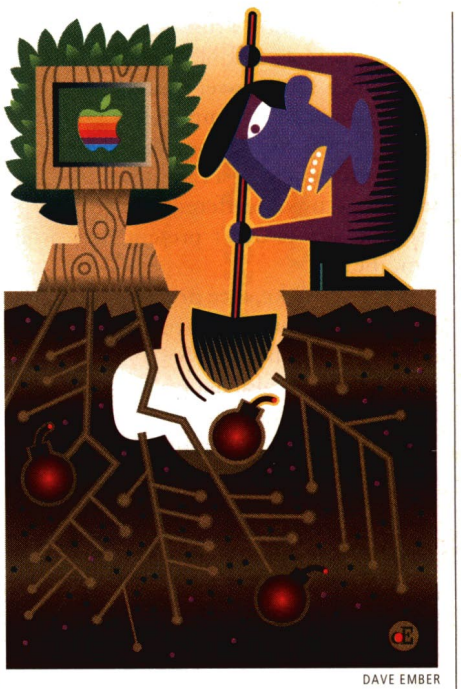
Greg Barber, a designer at Alphagraphics Inc., a San Mateo, Calif.-based design and print house, said he is happy with Zip and Jaz, which he is beta testing. In the past he used primarily Bernoulli drives, but he said Jaz cartridges are faster, cheaper and smaller. "All the advantages are on the Jaz side," he said.

Zippy trend

Many service companies are already seeing a trend away from the older SyQuest media and toward Zip media.

Peter Truskier, technology manager at Star Graphic Arts Co. Inc. of Brisbane, Calif., said his customers generally use

See Solutions, next page



DAVE EMBER

MACINTOUCH

RIC FORD

Exploring Type 11 roots, as well as more print drivers

Programmers working to isolate problems at the lower levels of the Mac OS have fingered several bugs that can cause the infamous Type 11 crashes, as well as other types of bombs and freezes. Unfortunately, there are no work-arounds for these problems, apart from repairing the system software or revising third-party software.

The following examples show the kinds of things that go wrong in the Mac OS, but similar symptoms can also be caused by problems with memory chips, SCSI trouble or bugs in application programs. Eliminating hardware issues and extension conflicts first is a good debugging technique because complex chains of events make isolating and reproducing Mac OS bugs difficult, both for programmers and users. The crash may happen long after a bug starts the process.

Software engineer Jeff Moore tracked intermittent crashes in Macromedia Inc.'s Deck II to errors in Apple "header" files used for sound and MIDI programming.

These errors have since been corrected, but any programs compiled with certain versions of those headers can continue to trigger crashes or conditions that cause other programs to crash. (More details about this and

See MacInTouch, next page

SOLUTIONS

From previous page

SyQuest media — either 44- or 88-Mbyte — when sending him files. But he said within the past six months he has seen a movement toward Zip cartridges. This isn't unwelcome, since Truskier said he finds Zip media more reliable than SyQuest because they have fewer instances of corrupted data and of compatibility problems.

"With SyQuest, sometimes we had problems mounting a cartridge if the customer had used a different driver than we use. Zip drives don't present that problem," he said.

Gary Wieneke, vice president and general manager at Andresen Digital Imaging, a pre-press house in San Francisco and Irvine, Calif., is also happy to see the market moving toward Zip.

SyQuest "failed to produce a reliable removable" since the 88-Mbyte model, Wieneke said, noting that all the 200-Mbyte SyQuest drives he purchased had trouble reading 44-Mbyte media. Of Zip drives, he said, "The media is cheaper and pretty much bulletproof."

Wieneke said his customers seem to share this feeling. Six months ago, 90 percent of his jobs came in on SyQuest drives; now it's down to 50 percent, with almost 40 percent coming in on Zip drives, he said. He is also beta testing a Jaz drive, and while he hasn't done any careful benchmarking, he said the drive seems as fast as his fastest hard drive.

Most of the remaining 10 percent of Andresen's customers use MO drives, but Wieneke said he doesn't particularly like them. "They're not always as seamless as you'd want. We sometimes have trouble mounting them and have to go back to the customer to find out what kind of driver they were using," he said.

While the older SyQuest media are the Zip's strongest competitor in terms of numbers, in terms of similarity of features SyQuest's EZ135 is Zip's biggest rival. The media holds 135 Mbytes and sells for about $19.95, so the cost per megabyte is about the same as the Zip, and the drives are about the same price. So far, however, the EZ135 isn't selling as well as Iomega's product, even though some users say the EZ135 is more reliable.

Nicholas Ivanitsky, general manager of Linotext Digital Imaging Inc. in Cupertino, Calif., said a significant number of customers are now using the EZ135. "The Zip is doing a little better than the EZ135 with our customers, but it's pretty close," Ivanitsky said. He said he prefers the EZ135 over the Zip drive because he believes it's faster.

Later this year, SyQuest is expected to release its SyJet 1.3-Gbyte drives, which will compete directly with Iomega's Jaz.

> "We have every type of removable media known to man."
>
> — *Bill Covington*

While new removable products such as SyJet and Jaz are grabbing headlines, Laser Tech is finding success with a relatively old medium. No matter what type of medium customers use to send files to the company, the return trip is usually on a CD-ROM. To Laser Tech's Covington, the advantages of CD-ROM are obvious: "Everyone has a CD-ROM reader, the discs are almost indestructible and the media is very inexpensive."

Since switching to CD-ROM almost a year ago, Covington said he has never received a call from a customer complaining that the media was formatted incorrectly or that a file was corrupted. Using CD-ROMs also saves Covington from dealing with customers' mistakes. "They can't accidentally erase a file and then call us for another one," he said.

Internal MO

Companies selecting removable-storage media for internal use don't have to be as concerned about how easily the media can be read on different platforms or about using different drivers, so they're more concerned with cost per megabyte and capacity. And for sheer capacity nothing can beat MO disks.

Before Covington installed his high-speed network he had 500 1.3-Gbyte MO disks in his work flow. "If we had used the alternatives, such as SyQuest, we'd have to have so many disks we'd be crowded out," he said.

Troy Tolkinen, system integrator at Banta Digital Group Color Response in Chanhassen, Minn., said he believes that when it comes to removable storage for internal use, bigger is better. His company has a wide range of drives, including 44-, 88- and 200-Mbyte SyQuest; Bernoulli; Zip; and 1.3-Gbyte MO. But for sending files around the office, he almost exclusively uses MO disks.

"We do primarily four-color book and catalog work, so our files are very large. We can use a single MO disk, and then we don't have to mess around with four or five SyQuest disks," Tolkinen said.

Joseph Hoffmann, general manager at Tana Color Graphics Inc. in New York, also uses MO media primarily for internal use. "It's a question of space," he said. "You get the most megabytes on the smallest real estate." Sometimes he needs to cram even more capacity into smaller space, so for less active files Hoffmann uses DAT systems. He said he can get almost 4 Gbytes (compressed) in a cartridge that costs less than $10.

Removable hard drive

Of course, for reliability and speed, no removable media has been able to replicate the performance of hard drives. For internal use, David Wolz, manager of electronic pre-press at American Color Systems Inc., a color pre-press house in New Berlin, Wis., has chosen to use a removable hard drive system from Mega Drive Systems Inc. of Beverly Hills, Calif.

Wolz said he needs a reliable and fast removable media, since his company uses a good deal of sneakernet. "It's a lot faster to walk our files 30 feet than send some of them across the network," he said, "and it's a lot more realistic for us to walk 30 feet than spend $30,000 on a high-speed network."

The removable hard drives are so reliable that he also prefers to use them when dealing with customers. However, since none of his customers has a MegaDrive base, he has to lend them out. "We'll do this if we're sending out a large number of large files," he said.

When mapping a removable-media strategy, service bureaus have to consider the cost, capacity, reliability, compatibility and popularity of each medium. And there are a number of trade-offs to consider: A medium that provides huge capacity may not always provide seamless compatibility among different systems, and a medium that is popular with clients may not be as indestructible as service company managers may want. □

MACINTOUCH

From previous page

other bugs described below are posted at http://www.macintouch.com/.)

Cris Mooney, software engineer at Jump Development Group Inc., chased down an apparent problem with the Modern Memory Manager, a critical part of the Mac OS that was rewritten for the first Power Mac models. (Mooney submitted detailed documentation to Apple, but the company has not yet verified the bug.)

The problem occurs when memory is tight and the programmer calls a certain routine (TempNewHandle) under Modern Memory Manager. The routine works successfully with the original Memory Manager.

Mooney also documented a problem in AppleShare 3.6.2, and Apple verified it. The bug bites with certain software installed if you open an alias to a shared network volume that has a password. This function changed in AppleShare 3.6.2, affecting Jump Development Group Inc.'s OptiMem RAM Charger 2.1.4, Datawatch Corp.'s Virex 5.5.3P2 and possibly other programs that perform similar operations.

STAZ Software Inc. of Diamondhead, Miss., develops Future Basic II, DeskPaint and other software.

Programmers at STAZ isolated bugs in the System 7.5.2 version of the Resource Manager. (System 7.5.2 shipped with the first Power Mac 7200, 7500 and 8500 models.) The bug caused crashes with certain resource operations, but Apple fixed it in System 7.5.3, according to STAZ.

> **LaserWriter 8.4 will enhance the user interface and update some internal code.**

One last report has serious implications and reportedly came from inside Apple, but it has not been confirmed. It notes a bug in Apple's Dynamic Recalculation Emulator (introduced with PCI-based Macs) that causes random and infrequent data corruption. There is no discussion of implications for Connectix Corp.'s Speed Emulator.

LaserWriters 8.3.4 and 8.4

As I was writing this, Apple had not officially announced or released updated laser printer software, but new versions should arrive shortly, first fixing bugs and then updating the printing user interface.

LaserWriter 8.3.4 addresses problems printing to fast printers and print spoolers, and Desktop Printing 2.0 fixes a memory bug (see 05.13.96, Page 39).

An unofficial hack may be helpful as a temporary work-around with third-party laser printer drivers until the third-party vendors provide updates incorporating Apple's new code: Use a resource editor to replace the PDEF 10 resource in a copy of the third-party driver with the PDEF 10 resource from LaserWriter 8.3.4.

LaserWriter 8.4, a version following LaserWriter 8.3.4, is a bigger update. It will bring enhancements to the printing user interface and update internal code for Open Transport and PowerPC processors, among other changes. You may need new PPD (PostScript Printer Definition) files for this driver, now reaching developers in pre-release form.

DeskJet 850C drivers

I overlooked one series of Hewlett-Packard Co. inkjet printers in my previous column about the company's driver software updates (see 05.13.96, Page 39).

The new DeskJet 850C models use special drivers of their own, although they share the HP Background Utility 4.06 with HP DeskWriter models. Version 8.0 of the 850C series driver provides native-PowerPC code. A separate QuickDraw GX driver is also available. HP maintains a Web page for DeskJet 850 software at http://www.hp.com/cposupport/indexes/dj800.html. □

Comments on MacInTouch are welcome at (508) 897-2621. Please address e-mail to ricford@macintouch.com on the Internet or 72511,44 on CompuServe. The MacInTouch home page is at http://www.macintouch.com/.

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Lapis Color 16	SE/30	Thousands	Thousands	256	256
Lapis Color 24	SE/30	Millions	Millions	256	256
Radius Direct Color/gx	IIsi	Millions	–	–	–
SuperMac Spectrum 8	IIsi	256	256	256	256
SuperMac Spectrum 8.24	IIsi	Millions	256	256	256

Video Card	Platform	Monitor (Colors) 14/15"	16/17"	19/20"	21"
Radius FPD Card	Mac SE	Mono	–	–	–
SuperMac Superview	Mac SE	–	–	Mono	–
Radius TPD Interface	Mac SE	–	–	–	Mono
RasterOps 8/LC	LC/PDS	–	–	256	–
SuperMac Spectrum 8	LC/PDS	256	256	256	256
Lapis Color 16 for LC	LC/PDS	Thousands	Thousands	256	256
Micro Conversions 1724	LC/PDS	Millions	Millions	256	256
Lapis Color 24 for LC	LC/PDS	Millions	Millions	256	256

Video Card	Platform	Monitor (Colors) 14/15"	16/17"	19/20"	21"
Double Color SX	Nubus	256	256	16	–
RasterOps 708+	Nubus	256	–	256	–
RasterOps 24L	Nubus	Millions	–	–	–
RasterOps 8/LC	Nubus	–	–	256	–
SuperMac Spectrum 8	Nubus	256	256	256	–
Double Color LX	Nubus	256	256	256	256
Radius Direct Color 24	Nubus	–	–	–	Millions
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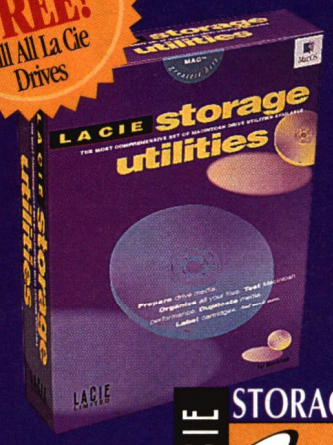

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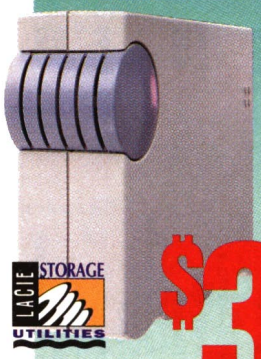

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2160MB Ultrastar ES	5 yr. warr.	$544
4.3GB Quantum Atlas 7,200 rpm	5 yr. warr.	$969

POWER WIDE HARD DRIVES

- Utilize Wide-SCSI technology for high-speed, high capacity file transfer

FAST: 1 drives + 1 card
WRITE 7.0 MB/Sec
READ 7.7 MB/Sec

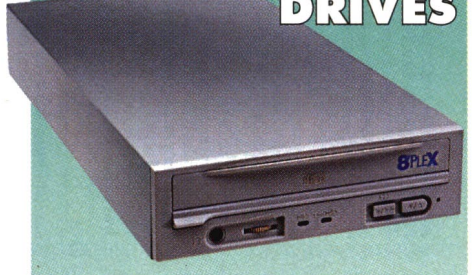
FASTER: 2 drives, 2 cards + RAID
WRITE* 13.0 MB/Sec
READ* 14.3 MB/Sec

FASTEST: 3 drives, 3 cards + RAID
WRITE* 32.8 MB/Sec
READ* 27.0 MB/Sec

Power Wide External Drives		
2.0GB Quantum Atlas Wide + Wide PCI Adaptec 2940 Board	NEW!	$1199
4.0GB Quantum Atlas Wide + Wide PCI Adaptec 2940 Board	NEW!	$1399
2.0GB Quantum Atlas Wide + RAID + Wide PCI Adaptec 2940 Board	NEW!	$1299
4.0GB Quantum Atlas Wide + RAID + Wide PCI Adaptec 2940 Board	NEW!	$1499

* RAID Level 0 (Striped) — For PCI Macs only

CD-ROM 8X DRIVES



- Fastest access speed available.
- Transfer rates up to 1200kb/sec.
- Smooth audio and video playback.

$299

8X CD-Rom

8X CD-Rom External	$299

CD-R DRIVES

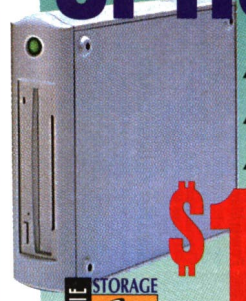
- Low cost media for backup.
- CD-Rs ship with Gear Multimedia software.
- Create your own CD with fast write capability.

$879

2X Recordable

CD-Recordables		
2X Recordable with Gear MultiMedia		$879
4X Recordable with Gear MultiMedia		$1389
650 CD-R Disk 74 Minutes	10 Disk Pack	$89

OPTICAL DRIVES



- Optical is the new standard in removable reliability.
- Available in two popular capacities.
- Compact storage convenience.

$1999

2.6GB Optical

230MB PowerBook Internal	1 yr. warr.	$399
230MB Optical Cartridge		$25
640MB External		$599
640MB Optical Cartridge		$49
2.6GB External	1 yr. warr.	$1999
2.6GB Optical Cartridge		$99

DAT AND DLT DRIVES

- The ideal medium for data backup.
- The cheapest backup solution per megabyte.

$899

8.0GB DAT DDS-2

DAT Drives Includes Retrospect	
8.0GB DAT DDS-2 External	$899
8.0GB TURBO DAT DDS-2 External	$1089
30.0GB Quantum DLT External	$2999
40.0GB Quantum DLT External	$4999

PORTABLE JOULE DRIVES

MACUSER EDITORS' CHOICE AWARD 1995 FINALIST

- Docking provides new security and backup solutions.
- Share hard disk-sized files with diskette convenience.
- Unplug and go for convenient data transport.

Joule 3.5" Drives with Dock		
850MB Quantum Trailblazer	3 yr. warr.	$329
1280MB Quantum Atlas	3 yr. warr.	$399
2160MB Ultrastar ES	5 yr. warr.	$669
8.0GB DAT DDS-2 Includes Retrospect		$959
230MB Optical	1 yr. warr.	$499

TOWER JOULE DRIVES

3.5" Drives with Mount — For use in Tower with a Joule Base.		
850MB Quantum Trailblazer	3 yr. warr.	$329
1280MB Quantum Atlas	3 yr. warr.	$399
2160MB Ultrastar ES	5 yr. warr.	$669
4.3GB Quantum Atlas	5 yr. warr.	$1099
8.0GB DAT DDS-2 Includes Retrospect		$959
230MB Optical	1 yr. warr.	$499
Joule Bases – Supports Stacks Up To 6 Drives High		
850MB Quantum HD	3 yr. warr.	$389
1080MB Quantum HD	3 yr. warr.	$429
2160MB Ultrastar ES HD	3 yr. warr.	$699
230MB Optical	1 yr. warr.	$529

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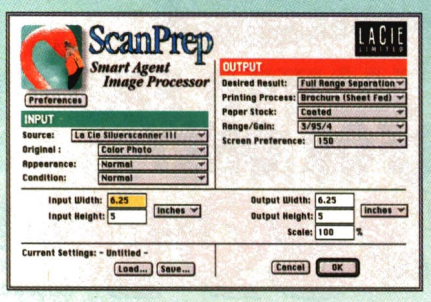
"ScanPrep is an essential application if you own a scanner... the sort of program that has to be seen to be believed."
Ben Long – MacWeek
Highest Possible Rating

"No matter what acquired plug-in you get if you use Photoshop, you'll also want to buy a copy of ScanPrep."
– MacUser
Highest Possible Rating



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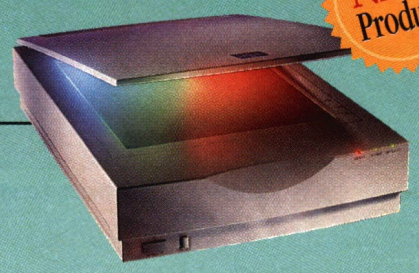

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▲ ScanPrep ▲ Silverscan
▲ Omnipage Lite OCR
$669

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▲ ScanPrep
▲ Omnipage Lite OCR
$799

4½

Silverscanner DTP with Photoshop LE
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▲ ScanPrep ▲ Silverscan
▲ Omnipage Lite OCR
$889

1 Year Scanner Warranty

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30 bit color, 600 x 1200 dpi interpolated up to 4800 dpi.
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▲ ScanPrep
▲ Omnipage Lite OCR
$1499

4

Silverscanner III with Photoshop Full
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▲ ScanPrep ▲ Silverscan
▲ Omnipage Lite OCR
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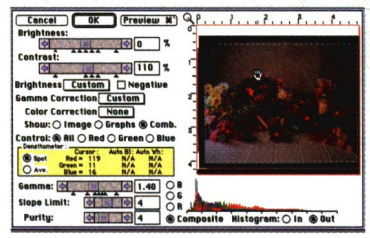

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* Full version only.

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SYQUEST EZ135

SYQUEST EZ135MB Includes **ONE FREE** cartridge and coupon for **2nd FREE** cartridge by mail!	2 yr. warr.	$187
SYQUEST 270MB External		$279
IOMEGA JAZ 1GB External Includes **THREE FREE** cartridges! ($357 Value)		$699
JAZ 1GB Cartridge		$119 ea.
JAZ 1GB Cartridge	10 Pack	$99 ea.

CARTRIDGES

	Qty. 1	Qty. 10
Syquest SQ400 44MB	$38 ea.	$37 ea.
Syquest SQ800 88MB	$42 ea.	$41 ea.
Syquest SQ2000 200MB	$66 ea.	$65 ea.
Syquest EZ135 135MB	$18 ea.	$17 ea.
Syquest SQ3270 270MB	$54 ea.	$53 ea.
Optical 128MB	$23 ea.	$22 ea.
Optical 230MB	$25 ea.	$24 ea.
Optical 1.3GB	$59 ea.	$58 ea.
Optical 2.6GB	$99 ea.	$97 ea.
CD-R 74 650MB		$8.90 ea.
DAT 90m	$9 ea.	$8 ea.
DAT 120m	$20 ea.	$19 ea.
DAT Cleaning Kit	$9 ea.	$8 ea.
DLT 30 30GB	$40 ea.	$39 ea.
DLT 40 40GB	$98 ea.	$97 ea.

CLEARANCE

90 day warranties. Some drives refurbished. No rain checks. Quantity is limited to to stock on hand. First come, first served.

HARD DRIVES	PRICE	QTY.
85MB 2.5" Quantum Internal	$79	6
50MB Quantum Int. (unformatted)	$29	4
80MB Quantum Int. (unformatted)	$39	2
120MB Quantum Int. (unformatted)	$45	17
540MB Quantum Int. (unformatted)	$129	5
540MB Quantum External	$149	47
1.2GB 5.25" Seagate Internal	$169	7
2.1GB Seagate Internal	$389	8
2.1GB Quantum Int. (unformatted)	$399	9
2.2GB Quantum Internal	$419	14
4.3GB Quantum Internal	$839	22
REMOVABLE DRIVES	**PRICE**	**QTY.**
155MB Teac Tape Internal	$29	52
128MB Optical Internal	$89	20

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1280 MB
Quantum Fireball

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APS Q 1080

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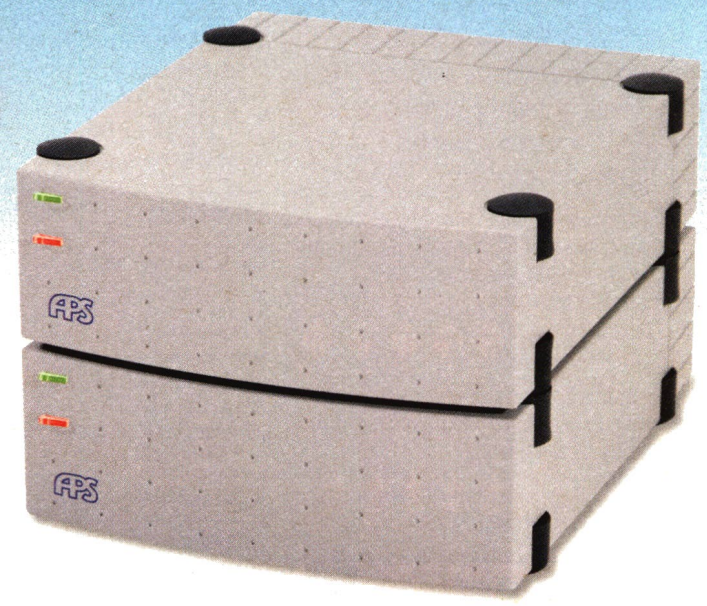
Internal configuration

- ✔ Well suited for home and office use
- ✔ Great for AV and non-AV applications
- ✔ 3.93MB/sec. sust. read, 4.27MB/sec. sust. write
- ✔ PRML technology delivers more storage to powerful CPUs & applications

Quantum · MacWEEK · MacUser ZD LABS ★★★★½ · Power Matched for Power PC

For an incredible value in 1GB drives, look no further than the APS Q 1080. It is backed by a 3-year warranty and supports a 500,000 hour MTBF. If you're ready to take a step forward in drive capacity and performance, the APS Q 1080 makes that step an easy one to take.



7200 RPM PERFORMANCE, 5400 RPM PRICE

GREAT PRICE

APS MS 2000

$469.95 Internal configuration

- ✔ 7.31MB/sec. sust. write, 4.54MB/sec. sust. read
- ✔ 5400 rpm mechanism
- ✔ Performs like a 7200 rpm drive
- ✔ 5-year warranty

MICROPOLIS · Power Matched for Power PC

This incredible drive has the performance you'd expect from a 7200 rpm mechanism but with a 5400 rpm drive's price – and reliability! The APS MS 2000 formats to 2047MB, delivers sustained reads at up to 4.54MB/sec. and sustained writes at up to 7.31MB/sec, has an average access time of 20 ms and average seek of 9.6 ms. It has a 5-year warranty and is rated at 650,000 MTBF.

4GB OF STORAGE FOR ONLY

APS MS 4.0

JUST $899.95 Internal configuration

- ✔ 7200 rpm mechanism delivers high transfer rates
- ✔ Great drive for disk-intensive applications
- ✔ 5-year warranty

MICROPOLIS · Power Matched for Power PC · MacUser ZD LABS ★★★★

When you're looking for a powerful, high-capacity drive to handle your 3D rendering program and all its files, this is it. The 7200 rpm APS MS 4.0 formats to over 4GB and supports sustained reads of 4.1MB per second and writes of 5.1MB per second. It also boasts a times as low as 6.2 ms and access times as low as 13 ms.

APS SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS Q 840 Quantum 840 Trailblazer	811MB 4500 rpm	MacUser ZD LABS ★★★★	$189.95 NEW LOW PRICE	$259.95
APS Q 1080* Quantum 1080 Fireball	1042MB 5400 rpm	MacWeek ◆◆◆◆ MacUser ZD LABS ★★★★	229.95 NEW LOW PRICE	289.95
APS Q 1280 Quantum Fireball II 1280	1222MB 5400 rpm	Power Matched for Power PC · MacUser ZD LABS ★★★★	269.95	369.95
APS I 2160 IBM Ultrastar ES	2063MB 5400 rpm	Power Matched for Power PC	479.95	579.95
APS MS 2000 Micropolis 4421	2047MB 5400 rpm	Power Matched for Power PC	469.95 NEW LOW PRICE	569.95
APS Q 2210* Quantum Capella	2047MB 5400 rpm	MacUser ZD LABS ★★★½	599.95	699.95
APS ST 4200 Seagate ST 15230N Hawk	4094MB 5400 rpm	MacUser ZD LABS ★★★★	889.95 NEW LOW PRICE	989.95

While supplies last

APS IDE DRIVES FOR MACINTOSH

Model	Capacity/Features	Internal
APS Q 1280A Quantum Fireball II 1280	1222MB 5400 rpm (Fast ATA-2)	NEW LOW PRICE $229.95
APS ST 2140A Seagate Medalist ST32140A	2167MB 5400 rpm (Fast ATA-2)	349.95

To receive an automated fax listing of all APS documents, call 800-374-5802 from any touch-tone telephone.

Then call 816-920-4150 from a fax machine with a handset or fax modem and follow the instructions.

APS HIGH-PERFORMANCE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS MS 2.0 Micropolis 4221	1955MB 7200 rpm	Power Matched for Power PC · MacUser ZD LABS ★★★½	$549.95	$649.95
APS MS 2.0AV Micropolis 4221AV	1955MB 7200 rpm	Power Matched for Power PC	649.95	749.95
APS Q 2.0 Quantum Atlas XP32150	2050MB 7200 rpm	Power Matched for Power PC · MacUser ZD LABS ★★★★	699.95	799.95
APS ST 2.0 Seagate ST 32550N	2047MB 7200 rpm		749.95	849.95
APS MS 4.0 Micropolis 3243	4064MB 7200 rpm	Power Matched for Power PC · MacUser ZD LABS ★★★★	899.95	999.95
APS Q 4.0 Quantum Atlas XP34300	4101MB 7200 rpm	Power Matched for Power PC · MacUser ZD LABS ★★★★½	899.95 NEW LOW PRICE	999.95
APS MS 4.0AV Micropolis 3243AV	4064MB 7200 rpm	Power Matched for Power PC	999.95	1099.95
APS ST 4.0 Seagate ST 15150N	4094MB 7200 rpm	MacWeek ◆◆◆◆ MacUser ZD LABS ★★★½	1099.95 NEW LOW PRICE	1199.95
APS MS 9.0 Micropolis 1991	8669MB 5400 rpm		1899.95	2099.95*
APS MS 9.0AV Micropolis 1991AV	8669MB 5400 rpm	MacUser ZD LABS ★★★★	1999.95	2199.95*
APS ST 9.0 Seagate ST410800N	8669MB 5400 rpm	NEW LOW PRICE	2099.95	2299.95*

- 30-day money-back guarantee on all APS brand products. Your risk is the cost of shipping.
- Drive-for-Drive Repair or Replacement Warranty. APS will, at its discretion, replace or repair products found to be defective according to the terms of the product's warranty.
- Refused orders subject to 20% restocking fee.
- Listed capacities are formatted.
- Actual data compression and tape capacity vary greatly depending on the type of data recorded, other system parameters and environment.
- Internal hard drives include brackets, cables, cords and LEDs required for operation with the specified Macintosh where applicable. External SCSI-2 drives come with a premium SCSI cable, power cord and user guide.
- All hard drives from APS Technologies come preformatted with Apple's System 7.0.1 software, and APS Technologies' APS PowerTools SCSI formatter/hard disk partitioner. You may need to install system software appropriate to your machine before use.
- Prices and specifications are subject to change without notice. Not responsible for typographical errors.
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APS FAST/WIDE SCSI DRIVES

Model	Capacity/Features	Awards	Internal	SR2000
APS MS 2.0W Micropolis 4221W	1955MB 7200 rpm	Power Matched for Power PC	$649.95	$749.95
APS Q 2.0W Quantum Atlas XP32150W	2050MB 7200 rpm	Power Matched for Power PC	799.95	899.95
APS MS 4.0W Micropolis 3243W	4064MB 7200 rpm	Power Matched for Power PC	999.95	1099.95
APS Q 4.0W Quantum Atlas XP34300W	4101MB 7200 rpm	Power Matched for Power PC	999.95 NEW LOW PRICE	1099.95

FAST/WIDE ADAPTER CARDS

Model	External SCSI Connection	Internal
QLogic Fast!SCSI Mac PCI-W Adapter for Fast/Wide drives	HD 68-Pin	$379.95
SiliconExpress IV For NuBus Quadras & Power Macs only. Fast/Wide adapter card.	HD 68-Pin	849.95

APS POWERBOOK DRIVES

Model	Capacity/Features	Internal
APS Q 810 Quantum Europa	778MB 3800 rpm, IDE – Fast ATA-2	NEW LOW PRICE $339.95
APS Q 1.08 Quantum Europa	1037MB 3800 rpm, IDE – Fast ATA-2	NEW LOW PRICE 429.95
APS I 1.2 IBM Travelstar DPRS-21215	1200MB 4900 rpm, SCSI-2	699.95

*Available only in full-height case

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JUST **$799.95** *External configuration*

A $500 value – FREE

650MB OPTICAL & 4X CD-ROM AT ONE LOW PRICE

APS PD4

Limited quantities, order now!

- ✔ Combines removable optical storage and backup with CD-ROM in one device!
- ✔ Accepts 650MB rewritable optical cartridges and CD-ROMs interchangeably

GREAT PRICE **$499.95** *External configuration*

The new APS PD4 is the most versatile drive available for your Mac. Combining a fast 4X CD-ROM player with rewritable 650MB optical cartridge drive, the APS PD4 saves a SCSI address while performing these two important desktop functions.

FAST 8GB BACKUP

APS HyperDAT®

- ✔ Up to 8GB of storage on one 120m DAT tape‡
- ✔ High transfer rates of up to 28MB per minute‡
- ✔ Compatible with all DDS-1 and DDS-2 media
- ✔ Includes Retrospect 3.0 backup software – FREE

$899.95 *External configuration*

Delivering backup speeds as high as 28MB per minute, this DDS-2 backup system can pack up to an incredible 8GB on a single 120m DAT tape!* The APS HyperDAT is compatible with other DDS-1 DC and DDS-2 DC drives. Perfect for office and network backup and archiving! ‡With hardware compression *Assumes 2:1 compression ratio

MacWorld Magazine World Class Award

MacUser Editor's Choice Award

Consultants Choice Award

APS SYQUEST DRIVES

Model	Capacity/Feature	Awards	Internal	SR2000
APS SQ 5200 Compatible with 200, 88 and 44MB cartridges	194MB	MacUser Editor's Choice; MacWEEK LABS ★★★★½	N/A	$349.95

APS CD-ROM DRIVES

Model	Features	Awards	Internal	SR2000
APS T 3701 Sustained data transfer rates up to 1000KB per second!	6.7X-SPEED	Power Matched for PowerPC	$249.95	$299.95
APS PD4 650MB optical storage with 4X CD-ROM in one device	CD-ROM/Removable Optical		N/A	499.95*
APS CD-R FREE TOAST CD-ROM Pro recording software ($500 value)	Recordable CD-ROM	NEW LOW PRICE	N/A	799.95*
APS CD-R Pro FREE TOAST CD-ROM Pro recording software ($500 value)	4X4 Performance CD-R	NEW LOW PRICE	N/A	1799.95**
APS CD-R Mastering System 2.0 4X read/4X write recording engine and a 2GB AV scratch disk			N/A	2499.95*
APS CD-R Mastering System 4.0 4X read/4X write recording engine and a 4GB AV scratch disk			N/A	2999.95*

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APS QIC & DAT TAPE BACKUP SYSTEMS

Model	Capacity/Features	Awards	Internal	SR2000
APS HyperQIC™ QIC 3080 Mechanism	2GB	MacWeek; MacWEEK LABS ★★★½	N/A	$499.95
APS DAT DDS-1 Non-Compression Mechanism	2GB		$649.95	699.95
APS HyperDAT® DDS-2 Compression Mechanism	8GB	Power Matched for PowerPC	849.95	899.95
APS HyperDAT® Pro DDS-2 High-Speed Mechanism	8GB	Power Matched for PowerPC	1049.95	1099.95

APS MO DRIVES

Model	Capacity/Features	Awards	SR2000
APS 230MB MO	4500 rpm drive/230MB	MacWEEK LABS ★★★★	$449.95
APS 2.6GB MO	4MB cache/2.6GB	Power Matched for PowerPC	1799.95

APS 2.6GB MO

- ✔ Terrific value
- ✔ Our highest capacity removable media device
- ✔ 4MB cache buffer improves drive performance
- ✔ Up to 2.4GB formatted capacity on a single, double-sided cartridge

$1799.95 *External configuration*

APS DLT TAPE BACKUP SYSTEMS

Model	Capacity/Features	Awards	Full-Height
APS DLT30 Digital Linear Tape Mechanism	30GB	Power Matched for PowerPC; MacUser Editor's Choice Award 1995 FINALIST	$3499.95
APS DLT40 Digital Linear Tape Mechanism	40GB	Power Matched for PowerPC	5499.95
APS DLT4500 Digital Linear Tape Loader	200GB		8899.95

All APS tape drives include Retrospect® by Dantz®

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106148 2.6GB MO CART.	$99.95
105202 PD 650 CART.	49.95
1017-650 74MIN. CD-R MEDIA	9.95

FUJI	SALE PRICE
DLT III CARTRIDGE	$39.95
DLT IV CARTRIDGE	99.95

SONY	SALE PRICE
106151 3-PK 128MB MO	$59.95
106152 3-PK 230MB MO	79.95

maxell	SALE PRICE
60M DAT	$5.95
90M DAT	9.95
120M DAT	24.95

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Sony

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06677	Multiscan 17sf II	$879.98
06678	Multiscan 20sf II	$1,819.00

Radius

95548	IntelliColor 20e Display	$1,799.00
92647	PrecisionView 17"	$969.98
92648	PrecisionView 21"	$2,189.00

Hitachi

87032	SuperScan MC 15M	$499.98
87033	SuperScan MC 20M	$889.98
87013	SuperScan MC 17S	$779.98
89286	SuperScan MC 17	$924.98
91096	SuperScan MC 20M	$1,399.00
91077	SuperScan MC 21	$1,899.00

Performantz

85806	Performantz 15" Monitor	$399.98
85822	Performantz 17" Monitor	$699.98

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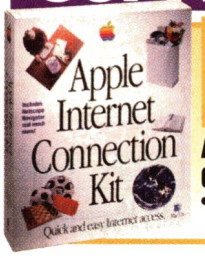

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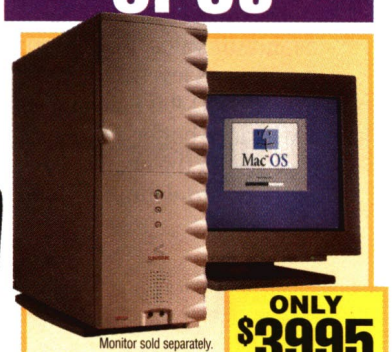

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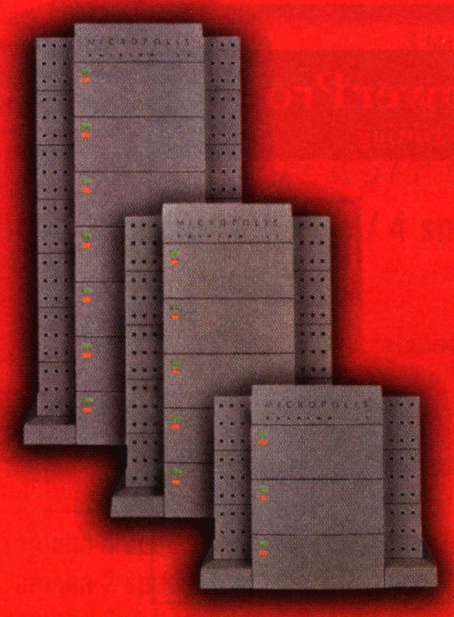

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Conner CFP2107S	2.1GIG	LP	8MS	7200	$ 759	$ 829
Seagate 32155N	2.1GIG	Ultra SCSI	9MS	5400	$ 599	$ 669
Quantum Capella	2.2GIG	MR	8.6MS	5400	$ 525	$ 595
Quantum Atlas	2.1GIG	LP	8MS	7200	$ 695	$ 765
Seagate Barracuda 2	2.5GIG	LP	8MS	7200	$ 715	$ 785
Seagate Barracuda 2W	2.5GIG	LP	8MS	7200	$ 775	$ 855
Conner CFP2107W	2.5GIG	LP	8MS	7200	$ 795	$ 895
Fujitsu M2934S	4.2GIG	MR	8MS	7200	$ 1075	$ 1145
Fujitsu M2934Wide	4.2GIG	MR	8MS	7200	$ 975	$ 1045
Seagate Barracuda 4	4.1GIG		8MS	7200	$ 1135	$ 1205
Seagate Barracuda 4W	4.1GIG		8MS	7200	$ 1255	$ 1325
Seagate Hawk4	4.3GIG		9MS	5400	$ 899	$ 999
Conner CFP4207S	4.2GIG		9MS	7200	$ 999	$ 1069
Conner CFP4207wide	4.2GIG		9MS	7200	$ 1099	$ 1199
Quantum Atlas	4.3GIG		8.6MS	7200	$ 999	$ 1069
Seagate Elite 9	9.0GIG		11MS	5400	$ 2095	$ 2195
Seagate Elite 9W	9.0GIG		11MS	5400	$ 2295	$ 2395

CD RECORDERS/PLAYERS

Ricoh 2 speed recorder / 4 speed player
1420

$799

We also have the 2 x4 with 2MB of Cache $ 999

Includes Free software

Yamaha 4 speed Recorder / 4 Player	External	$ 1299
Yamaha 2 speed Recorder / 4 speed Player	External	$ 849
Yamaha 2x4 Recorder with built in hard drive	External	$ 1329
Philips 2x4 Recorder	External	$ 825
Pioneer 4 speed 18-Disc CD-ROM Changer	External	$ 1499
Toshiba 3701 6 speed CD Player	External	$ 370
Nakimichi 8x 4-Disc CD-ROM Changer	External	$ 745
Panasonic 4x CD/650MB Optical	External	$ 499
150 Slot Jukebox with 4 players, all platforms	External	$ 15900
150 Slot Jukebox w/ CD Recording, all platforms	External	$ 17500
CD Duplicator. Just hit the button, walk away.	External	$ 5999

CD Network Archiving, Libraries, and Recording. All Platforms.

"Stick with a vendor such as Direct Connections that understands how to prepare a RAID for desktop video." MacWorld April '95

RAID SYSTEMS

FAST DESKTOP OR SERVER

- 28mb/sec sustained sequential Writes.
  Tested with MacBench on PowerMac 9500.
  12GIG with 2 PCI accelerator cards $ 7799

From Hardware RAIDS to Software RAIDS, we'll show you how to configure the best system to meet your needs.

Atto Silicon Express IV	$ 835
Atto Express PCI MC	$ 765
Atto Express PCI SC	$ 345
Adaptec AHA-2940UW	$ 325
SCSI Expander	$1345

External, Remus software, and cabling

- 4 GIG Fast and Wide Raid $ 2199
- 8 GIG Fast and Wide Raid $ 2799
- 16 GIG Fast and Wide RAID $ 5870
- 28 GIG Fast and Wide RAID $ 9499
- 40 GIG Fast and Wide RAID $ 15599

MEDIA 100 TARGA 2000 radius

OPTICAL DRIVES

2.6GIG Sony Optical for $1959 external including all cabling, and software!!

CAPACITY	MODEL	EXTERNAL
230MB	Fujitsu	$ 499
2.6GB	Hitachi	$ 1895
2.6GB	Sony 1MB cache	$ 1959
2.6GB	Sony 4MB cache	$ 2159
26GB	Sony Jukebox	$ 4695
52GB	Sony Jukebox	$ 6295

1 YEAR WARRANTY

TAPE BACK-UP

We are the tape-backup Experts

2 YEAR WARRANTY

$3299

With 2.5MB/sec sustained transfer, the DLT2000XT is perfect for digital video or pre-press with large data files.

All systems include cabling, and Retrospect software.

CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
-4GIG	Tandberg Panther	1/4"	$ 469	$ 539
-8GIG	DC8000	4MM	$ 839	$ 899
-8GIG	Sony 7000 DDS-2* 1.5MB/sec	4MM	$ 1199	$ 1299
-14GIG	Exabyte 8505XL	8MM	$ 2065	$ 2125
-14GIG	Exabyte 8700	8MM		$ 1575
-30GIG	DLT2000XT	1/2"		$ 3299
-40GIG	DLT4000	1/2"		$ 4999
-140GIG	Exabyte-10h Library	8MM		$ 4999
-200GIG	Spectra Logic 4000	4MM		$ 8599
-200GIG	DLT4500 Loader	1/2"		$ 8999

DIRECT CONNECTIONS 7668 Executive Drive, Eden Prairie, MN 55344 Gov't, Corp, and Univ. P.O's accepted. *1YR Warranty 30 day money back does not apply towards media and software.

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CLUBMAC HARD DRIVES

Quantum

FIREBALL 1280MB

Locked by ClubMac's 30 DAY Money Back Guarantee

Internal Fireball C104 0001
12ms Access Time

$269

TRAILBLAZER 850MB

14ms Access Time
Internal TrailBlazer C104 0002

$189

Locked by ClubMac's 30 DAY Money Back Guarantee

Capacity	Model	Part No.	Internal	Part No.	External
850MB	Trailblazer 14ms	C104 0002	$189	C104 0052	$249
1280MB	Fireball 12ms	C104 0001	$269	C104 0051	$329
2170MB	Saturn 8.5ms	C104 0011	$479	C104 0061	$539
2150MB	Atlas 8ms	C104 0004	$689	C104 0054	$749
4280MB	Atlas 8ms	C104 0005	$899	C104 0055	$959

BEST BUY

$899

ATLAS 4.3GB

7200 RPM
1024K CACHE

Internal Atlas
C104 0005

Manufacturer's 5 Year Warranty

Locked by ClubMac's 30 DAY Money Back Guarantee

1280MB	Fireball IDE	C104 0012	$229	
1700MB	Sirocco IDE	C104 0009	$289	
2550MB	Sirocco IDE	C104 0010	$369	

Quantum IDE hard drives are compatible with Quadra 630, Performa 5200/5300, and Performa 6200/6300 Series

FAST & WIDE DRIVES

20MB/sec Data Transfer Rate

2150MB	Atlas XP32150SW	C104 0103	$749	C104 0152	$849
4280MB	Atlas XP34300SW	C104 0102	$999	C104 0153	$1099

2.5" POWERBOOK DRIVES

810MB	Europa IDE*	C104 0007	$249
1080MB	Europa IDE*	C104 0008	$319

*Compatible with PowerBook 150 and 5300 series only.

$249

EUROPA 810MB

Manufacturer's 3 Year Warranty

Locked by ClubMac's 30 DAY Money Back Guarantee

C104 0007

Seagate

BARRACUDA 4 4.3GB 7200 RPM

$1219

External Barracuda 4
C104 0351

Locked by ClubMac's 30 DAY Money Back Guarantee

Seagate 5 YEAR Warranty

3.5" HALF HEIGHT & LOW PROFILE (LP)

Formatted Capacity	Model	Part No.	Internal	Part No.	External
1.0GB	Medalist 51080N	C104 0302	$269	C104 0352	$329
2.5GB	Barracuda 2LP 32550N	C104 0300	$729	C104 0350	$789
4.3GB	Barracuda 4 15150N	C104 0301	$1159	C104 0351	$1219

5.25" FULL HEIGHT

9.1GB	Elite-9 410800N	C104 0305	$1999	C104 0355	$2099

FAST & WIDE DRIVES

20MB/sec Data Transfer Rate

2.1GB	Barracuda 2LP ST32150W	C104 0400	$799	C104 0450	$899
4.3GB	Barracuda 4 ST15150W	C104 0401	$1229	C104 0451	$1329
9.1GB	ELITE 9 ST410800W	C104 0402	$2099	C104 0452	$2219

ALL CLUBMAC HARD DRIVES INCLUDE CHARISMAC ANUBIS FORMATTING UTILITY. ANUBIS IS THE FASTEST, MOST RELIABLE SCSI FORMATTING UTILITY FOR THE MAC. ANUBIS ANTICIPATES POSSIBLE PROBLEMS AND CORRECTS THEM ON THE FLY, PROTECTING YOU FROM DISASTROUS DISK CRASHES AND OTHER UNANTICIPATED ERRORS.

CD RECORDABLE DRIVES

YAMAHA® 4X CD Recorder

NEW LOW PRICE

$1499

Y010 1002

Manufacturer's 1 Year Warranty

0024 1001

$1299

OPTIMA TECHNOLOGY
DisKovery 650CDR

NEW PRODUCT

Y010 1002	Yamaha 4X CD Recorder w/Toast CD Mastering software	$1499
0024 1001	Optima DisKovery 650CDR2X CD Recorder	$1299
P074 1009	RCD-5040 2X Recordable CD System 2X Write/4X Read	$1249
M274 1002	PlayWrite 2X 2000 CDR w/Gear Multi-Platform Multimedia Software	$1149

FAST & WIDE CONTROLLERS

qlogic Corp.

$229

Q010 1007

PCI CARD BUNDLE

Buy any Fast and Wide Drive and get a QLogic Fast and Wide PCI SCSI Controller for only $229.

FWB incorporated

World Class Storage Solutions

JackHammer Accelerators for PCI & NuBus

$389

Accelerate all internal and external storage devices on your computer! Hard drives, optical, tape, SyQuest, etc. Supports SCSI-1, SCSI-2, Fast SCSI-2, and Fast & Wide SCSI-2. SCSI manager 4.3 features built-in. Flash ROM upgradeable via software. Use to create the fastest arrays for Power Macintosh and Macintosh. Supports System 7.5 4GB volume size. Requires a full size NuBus slot or a PCI slot.

F094 1033	SCSI JackHammer PCI	$389
F094 1002	SCSI JackHammer NuBus	$459

CLUBMAC CD-ROM DRIVES

$169
C104 1700

ClubMac® 4.4X

Features:
600KB/sec data transfer
190ms avg access time
Caddy-less design

Manufacturer's 1 Year Warranty

Locked by ClubMac's 30 DAY Money Back Guarantee

C104 1700 **ClubMac 4.4X-Speed CD-ROM Drive** $169

ClubMac®

		Access time	Trans Rate	
C104 1600	ClubMac Six-Speed CD-ROM Drive	140ms	900k/sec	$299
C104 1700	ClubMac 4.4X-Speed CD-ROM Drive	140ms	600k/sec	$169
C104 1400	ClubMac Classic 2X CD-ROM Drive	250ms	300k/sec	$79

NEC

		Access time	Trans Rate	
N024 1062	MultiSpin 6Xe CD-ROM Reader	150ms	900k/sec	$479
N024 1070	MultiSpin 4Xc 7 Disc Changer	350ms	600k/sec	$339
N024 1011	MultiSpin 3Xp plus Portable CD-ROM	240ms	500k/sec	$349

NEC

MultiSpin 4Xc 7 Disc Changer
Load 7 Discs at a time!

$339
N024 1070

Manufacturer's 1 Year Warranty

4X

N024 1070 **NEC MultiSpin 4Xc 7 Disc Changer** $339

CLUBMAC REMOVABLE STORAGE

ClubMac 200MB SyQuest® Drive

FEATURING SyQuest® REMOVABLE TECHNOLOGY

Mac OS COMPATIBLE

Backed by ClubMac's 30 DAY Money Back Guarantee

MacUser ★★★★

C104 1801 **ClubMac 200MB 5.25" Removable** (Cartridge not included) $329

Jaz 1.0GB Drive

Manufacturer's 1 Year Warranty

Includes One Free Cartridge

I040 1014 **Jaz Drive with One 1.0GB Cartridge** $599.95

Mac OS COMPATIBLE

Backed by ClubMac's 30 DAY Money Back Guarantee

ClubMac 105 MB SyQuest® Drive

$329 C104 1802

$149 C104 1803

ClubMac 270 MB SyQuest® Drive

C104 1803 **ClubMac 105MB 3.5" Removable** (Cartridge not included) $149

C104 1802 **ClubMac 270MB 3.5" Removable** (Cartridge not included) $329

Zip 100MB Drive

Zip Cartridge (100MB)		
I040 1006	1 Pack	$19.99
I040 1011	3 Pack	$49.99
I040 1010	10 Pack	$149.99

Includes One Free Cartridge

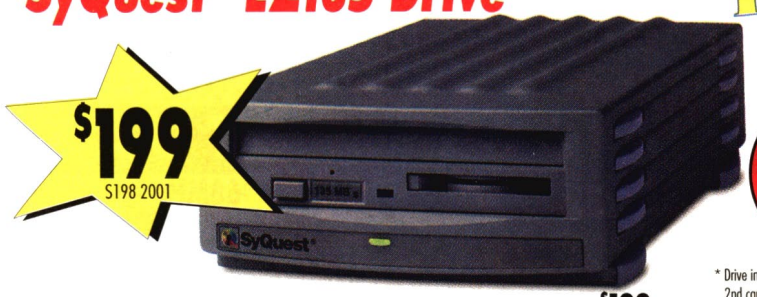
$199.95 I044 1010

Manufacturer's 1 Year Warranty

I044 1010 **Zip Drive with One 100MB Cartridge** $199.95

SyQuest® EZ135 Drive

EZ135 EZDrive™



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2 FREE CARTRIDGES (Buy a SyQuest EZ135 and SyQuest will send you an additional cartridge)*

* Drive includes one cartridge, a mail-in coupon for 2nd cartridge is included. Offer ends 7/31/96.

Mac OS COMPATIBLE

S198 2001 **SyQuest EZ135 135MB 3.5" Removable** (Cartridge included) $199

SyQuest Media

Part Number	Media	Qty 1	Qty 10	Qty 20
S198 1010	44MB	$40ea	$39.50ea	$39ea
S198 1011	88MB	$44ea	$43.50ea	$43ea
S198 1012	200MB	$69ea	$68ea	$67ea
S198 1013	105MB	$35ea	$34.50ea	$34ea
S198 1014	270MB	$57ea	$56ea	$55ea
S198 2010	EZ135MB	$19ea	$18.50ea	$18ea

Buy this Stuff... Get this stuff FREE

Zip 10-Pack + Zip Drive = Carrying Case ($30 Value!) + 2 Zip Caddys

Free Stuff Offer ends September 15, 1996

New ClubMac Catalog is now Available! Call 800-258-2622.

Authorized Catalog Reseller

HOURS A DAY 24 OPEN 7 DAYS A WEEK

General Sales	24 Hours a Day, 7 Days a Week	(800) 258-2622
Inquiries/International Sales	24 Hours, 7 Days a Week	(714) 768-8130
Corporate/Education Sales	M - F 5am - 5pm PST	(800) 258-2621
Customer Service	M - F 7am - 5pm PST	(800) 551-6398
Technical Support	M - F 7am - 5pm PST	(800) 854-6227
24-Hour Fax		(714) 768-9354

- ClubMac hard drives include all cables, cords, leds, and brackets necessary for use with the Macintosh you specify. ClubMac formats all hard drives and installs Apple System 7.1 software, Charismac Anubis Driver, and PowerMerge LE.
- External drives include a Double Shielded, twisted pair 25-50 SCSI cable.
- ClubMac honors all original equipment manufacturers warranties. ClubMac will repair or replace drives at it's discretion. Drives returned within first 30 days of purchase are replaced with a new unit.
- All ClubMac hard drives include a 30 day money back guarantee. Your risk is the cost of shipping.

DISCOVER NOVUS · VISA · MasterCard · AMERICAN EXPRESS Cards **NO SURCHARGE!**

Source Code 65236

ClubMac®

1-800-258-2622

7 Hammond, Irvine CA 92718

CLUBMAC TAPE BACKUP

ClubMac®

Manufacturer's 2 Year Warranty

Backed by ClubMac's 30 DAY Money Back Guarantee

Tape Back-Up Drives

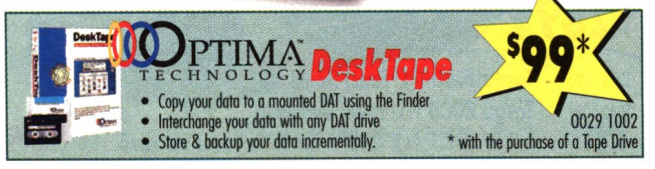
C104 0900	**ClubMac 2-4GB SCSI QIC MiniCartridge Drive** (Cartridge not included)	$489
C104 1300	**ClubMac 2.0GB ThunderDAT Drive**	$749
C104 1301	**ClubMac 4-8GB DDS-2 DAT Drive**	$829
C104 1200	**ClubMac 4-8GB DDS-2 SuperDAT Drive**	$1059
C104 1302	**ClubMac 4-8GB Performance DAT Drive**	$1079
C104 0200	**ClubMac 40GB DLT Subsystem DLT 4000**	$4569
S100 1043	**Sony QW3080XLF QIC/WIDE 2-4GB Cartridge**	$29
V010 1018	**Verbatim 90M 4mm DAT Cartridge 2-4GB**	$9
S104 1008	**Sony 120M 4mm DAT Cartridge 4-8GB**	$29
Q034 1022	**1/2 inch media for DLT 4000**	$99

DDS-2 DAT Drive

NEW LOW PRICE

Mac OS COMPATIBLE

Includes One Free DAT Tape


OPTIMA TECHNOLOGY DeskTape
• Copy your data to a mounted DAT using the Finder
• Interchange your data with any DAT drive
• Store & backup your data incrementally.
$99*
0029 1002
* with the purchase of a Tape Drive

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GENESIS SYSTEMS

DAYSTAR DIGITAL

Genesis MP528

Multi-Processing power with TWO 150MHz PowerPC processors

$5995* D042 1012

NEW PRODUCT

150MHz PowerPC

- Six PCI expansion slots
- 4X CD-ROM Drive, ADB Mouse, and Apple floppy drive
- Ethernet, 10Base-T & AAUI connector
- 512k Cache
- Multi-processor Plug-ins for: Adobe Photoshop, After Effects, Strata StudioPro Blitz & Kodak KCMS/Photo CD/Quick-time

*Monitor & keyboard not included.

MONITORS

NEC

14" C400 Monitor

NEW PRODUCT

$299 N026 102

- 14" AntiStatic, Non-glare CRT
- .28mm dot pitch
- Max Resolution: 832x624

1 Year Manufacturer's Warranty

N026 1029	**14" C400 Monitor** 13.2" Viewable Image size	$299
N026 1033	**15" C500 Monitor** 13.8 Viewable Image Size	$399
N026 1031	**15" MultiSync XV15+** 13.8 Viewable Image Size	$469
N026 1036	**NEC M500 15"** NEW Chromaclear Monitor-13.8 Viewable Image Size	$599

17" MultiSync XV17+

$799 BEST BUY

3 YEAR WARRANTY

N026 1032

FEATURES

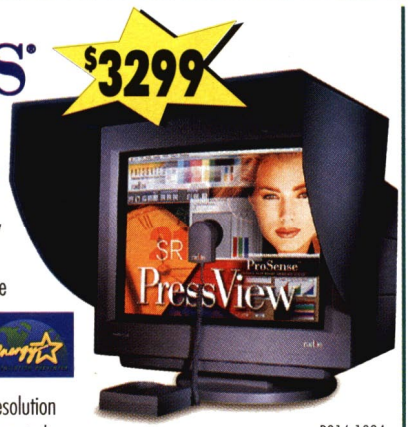
- 17" Flat Square Technology CRT
- 15.6" Viewable Image Size
- MAC Resolution up 1024 x 768 NI
- 0.28 mm dot pitch
- On-Screen Manager

N026 1032	**17" MultiSync XV17+**	$799
N026 1007	**17" NEC XE17**	$999
N026 1009	**17" NEC XP17**	$1049
N026 1010	**21" MultiSync XE21** 19.8 Viewable Image Size	$1699

radius

PressView™ 21SR Display

$3299



R016 1034

Quality, High Resolution Display for Creative Professionals

- 21" DiamondTron Color Tube w/aperture grill
- .30mm Dot Pitch
- Energy Star Compliant
- Capable of 1600 x 1200 resolution
- On Screen display of digital controls

R016 1032 **PrecisionView™ 21** $2399

ViewSonic®

17GA PerfectSound Multimedia Monitor

$799

V056 1016

FEATURES

- HiFi Speakers built in
- 17" (15.7" Viewable Image Size)
- Max Res: 1280 x 1024
- PC and Mac compatible

BUILT-IN STEREO SPEAKERS

V056 1016	**ViewSonic 17GA Monitor**	$799
V056 1020	**ViewSonic PT770 Monitor**	$889

SONY

Multiscan 17SFII

$915

FEATURES

- 16.0" Viewable image size
- .25 mm Aperture Grille Pitch
- Max Mac Resolution: 1024 x 768 ™ 75hz
- On screen display of screen controls
- Macintosh Adapter included
- 3 Year Warranty parts and 2 Year CRT

S106 1018	**Sony Multiscan 17SFII**	$915
S106 1017	**Sony Multiscan 15SFII**	$495

VIDEO CARDS

radius Thunder 30 PCI Cards

- 30-bit color with built-in photoshop Acceleration
- Real-time CMYK-to-RGB display
- On-the-fly resolution and bit-depth switching

$799 R013 1070

R013 1070	**Thunder 30/1152** PCI Card Resolution up to 1152 x 870	$799
R013 1073	**Thunder 30/1600** PCI Card Resolution up to 1600 x 1200	$999

Radius PrecisionColor 8/1600

$349 R013 1069

PrecisionColor 8/1600 is the cost-effective way to get super productivity on your Power Macintosh with PCI. It delivers high-speed QuickDraw performance for fast color display plus Super Resolution (1600x1200) that lets you see more of your work, more clearly.

R013 1069	**PrecisionColor 8/1600** 2MB VRAM	$349
R013 1082	**PrecisionColor 24/1600** 4MB VRAM	$499

$289.99 NEW LOW PRICE

Designed for Macintosh computers with PCI

ATI XCLAIM GA

ATI's renowned *mach64* graphics acceleration chip gives the XCLAIM GA its exceptional abilities. It features 2MB or 4MB of VRAM,& displays up to 16.7 million accelerated colors at 1152x870.

A143 1010

A143 1010	**ATI XCLAIM GA** 2MB PCI video card	$289.99
A143 1009	**ATI XCLAIM GA** 4MB PCI video card	$439.99

NUMBER NINE VISUAL TECHNOLOGY

Imagine 128

- 128-bit graphics engine
- 128-bit internal data path
- 128-bit memory bus
- Exclusive WideBus™ design means drawing pathways are a full 128-bits wide from processor to high speed VRAM

Designed for Macintosh computers with PCI

N080 1003

$729

N080 1002	**Imagine 128** 8MB Accelerator	$1169
N080 1003	**Imagine 128** 4MB Accelerator	$729

DIGITAL VIDEO

radius VideoVision Studio 2.5.1

$2399 R013 1018

Broadcast-Quality Video
VideoVision studio can deliver broadcastable quality video output in NTSC and PAL timing.

16-bit Audio
VideoVision Studio can now simultaneously capture video with 16-bit, 44.1 KHz stereo sound using the on-board audio of the Power Macintosh.

R013 1018 **VideoVision Studio 2.5.1** $2399

TRUEVISION

Targa 1000 Digital Video Editing

Transform Your Desktop Computer into a Powerful Digital Video Editing System.

...Easily and Affordably!

T043 1003

$2699

Designed for Macintosh computers with PCI

T043 1003	**Targa 1000** (PCI Power Macintosh)	$2699
T043 1001	**Targa 2000** (PCI Power Macintosh) (* as low as $2995 w/qualified trade-in)	$2995*

ACCELERATORS

DAYSTAR DIGITAL

1 Year Warranty 30 DAY Money Back Guarantee

66MHz Turbo 601

Mac IIci, IIsi, IIvx, Performa 600

NEW LOW PRICE

$499 D040 1039

Runs your current software up to twice as fast, and runs PowerPC applications 7 to 11 times faster.

100MHz PowerPro 601

Quadra and Centris (610, 650, 700, 800, 900, and 950 series)

$1199 D040 1043

- Transforms your Mac into a top of the line PowerPC workstation
- Works with your current memory
- 64-bit data path increases performance
- Requires System 7.5

D040 1018	**40/Mhz Turbo 040** with 128K cache	$599
D040 1043	**100Mhz PowerPro 601** with 1MB cache	$1199
D040 1048	**100Mhz Turbo 601**	$1139

MicroMac Technology

Carrera040

MAC IIci, IIisi, IIcx, or IIx

NEW PRODUCT

$599

Just plug in the Carrera040 accelerator and instantly get blazing performance from your existing Mac

M264 1003 **40/80Mhz Carrera 040** with FPU $599

MEMORY

SPECIAL

16MB 4x32 SIMM

NEW LOW PRICE

$299

M101 1054	**8MB 72 Pin Simm**	$145
M101 1072	**16MB 72 Pin Simm**	$285
M101 1081	**8MB Dimm**	$139
M101 1082	**16MB Dimm**	$275

ALL MEMORY AVAILABLE! CALL FOR BEST PRICE.

SCANNERS

Reli 4830 Mac/TE Color Scanner

R060 1004 **Reli4830 MAC/TE Color Scanner** $899

R060 1016 **Relisys Scorpio Color Scanner** 300 x 1200 dpi $419

R060 1017 **Relisys Taurus Color Scanner** 600 x 1200 dpi $699

UMAX Powerlook II

The Magic of Color™

FEATURES

- 36-bit color scanning
- 600 x 1200 dpi
- 3.3 Dynamic Range
- Includes Transparency Adapter
- Package includes: Adobe Photoshop, KAI's PowerTools SE, PowerPhotos CD, WordLinx OCR, Pixar Typestry, & Pixar 128CD

U010 1052

U010 1052 **PowerLook II** 36-bit color scanning, 600 x 1200 dpi $2495

U010 1055 **Vista-S12 LE** $799

VISIONEER PaperPort Vx

FEATURES

- 6 second typical scan time
- 400 dpi resolution
- 256 Gray-scale imaging
- Scan Documents up to 30" long
- Includes OmniPage Lite, CardScan SE, PictureWorks Copier

V029 1008 **PaperPort Vx for Macintosh** $295

EPSON ES1200C Pro

FEATURES

- 600 dpi optical resolution,
- 30-bit color scanning
- Pro Package includes: Adobe Photoshop, Scantastic, KAI's PowerTools, SCSI cable

E045 1003 **Epson ES1200C Pro-MAC Color Scanner** Full Package $1179

E045 1007 **Epson ES1200C LE-MAC Color Scanner** w/Scantastic $949

E045 1013 **Epson ES1000C LE-MAC Color Scanner** $735

Nikon ELECTRONIC IMAGING COOLSCAN II

- Single-pass, 2700 dpi, 24-bit, 35mm Desktop Film Scanner
- 20 second pre-scan, 80-second final scan for 2592 x 3888 pixels
- Cool LED illumination for long life and low noise
- Intelligent hardware autocalibration, autofocus, autoexposure and autocolor balance
- Nikon Scan driver software ensures ease of use
- Adobe Photoshop plug-in
- SCSI-2 interface

N045 1008 **Coolscan II** $1199

MICROTEK ScanMaker III

Better Images Through Innovation.

FEATURES

- 600 dpi & 36-bit color scanning
- Includes Transparency Adapter
- Single pass scanning
- DCR (Dynamic Color Rendition) calibration/correction system
- Apple ColorSync compatible
- Package includes Adobe Photoshop

M150 1006 **Microtek ScanMaker III** $1989

AGFA Arcus II

FEATURES

- 600 dpi & 36-bit color scanning
- 3.0 Dynamic Range
- Includes Transparency Module
- Package includes:
  - Adobe Photoshop
  - Agfa FotoLook Scanner driver software
  - Agfa FotoTune Color Management software

A055 1001 **AGFA Arcus II** $1995

A055 1011 **AGFA StudioScan IIsi** $699

PRINTERS

EPSON Stylus Color Pro

FEATURES

- 720 x 720 dpi photo quality on plain paper
- PostScript upgradeable
- True black laser text
- Pantone matching
- Text print speed up to 3ppm, color 1ppm

E047 1019

E047 1019 **Epson Stylus Color Pro** $499

E047 1018 **Epson Stylus Color II** $299

Epson Stylus Color Pro XL

FEATURES

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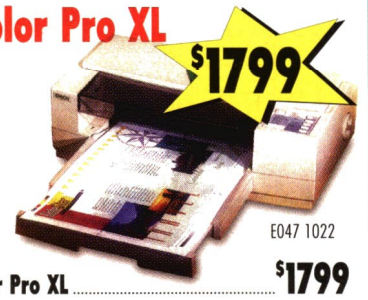
- 720 x 720 dpi photo quality with *I* technology
- Optional Adobe PostScript with Pantone Color Calibration



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E047 1022 **Epson Stylus Color Pro XL** $1799

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H047 1030 **HP LaserJet 5MP Printer** $1045

HP DeskJet 855Cxi Printer

Features

- *COLOR PRINTER*
- Dual I/O for PC or Macintosh connection
- Black print speed up to 7ppm
- Color print speed up to 3ppm
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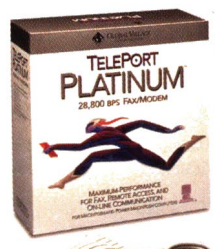
H047 1065 **HP DeskJet 855Cxi InkJet Printer** $499

MODEMS

GLOBAL VILLAGE COMMUNICATION TelePort Platinum Fax/Modem



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G050 1016 **TelePort Platinum** 28.8 data, 14.4 S/R, GlobalFax, GlobalFax OCR $199

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Supra Corporation

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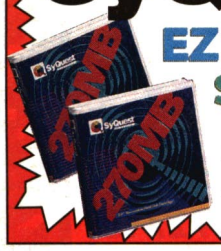

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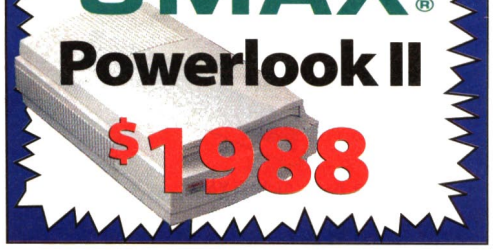

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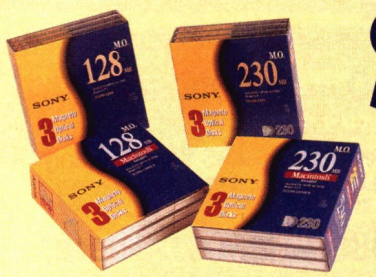

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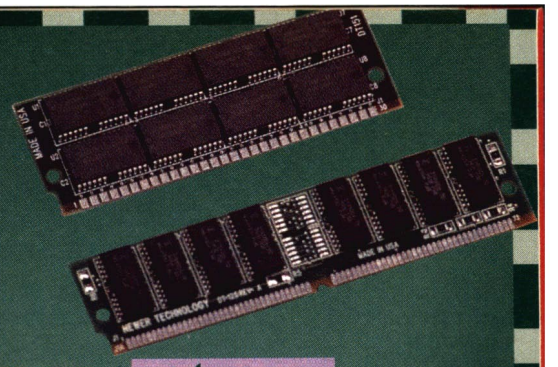

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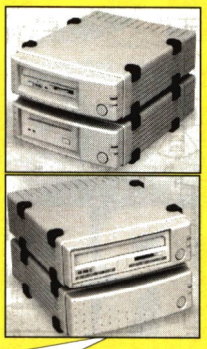

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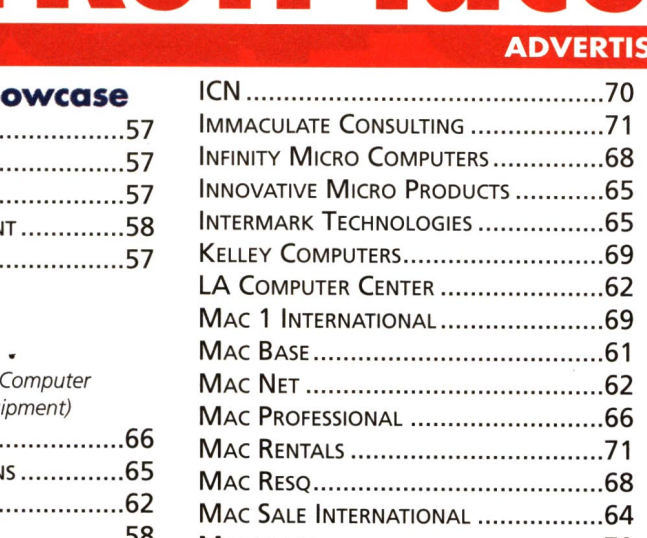

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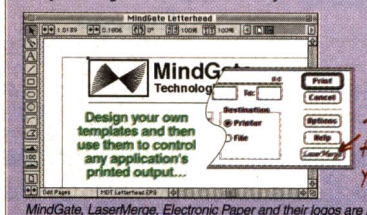

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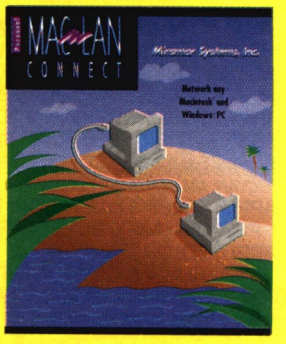

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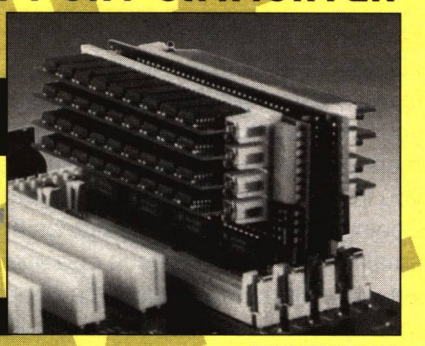

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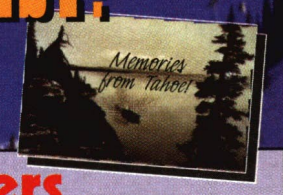

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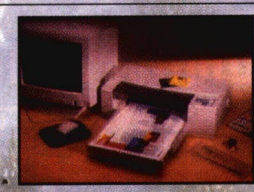

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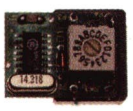

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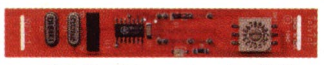

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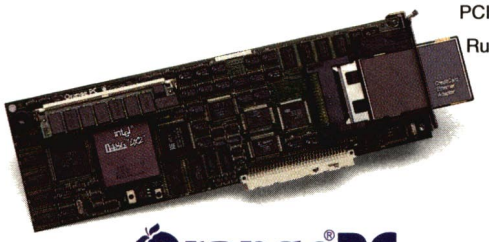

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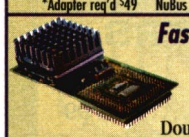

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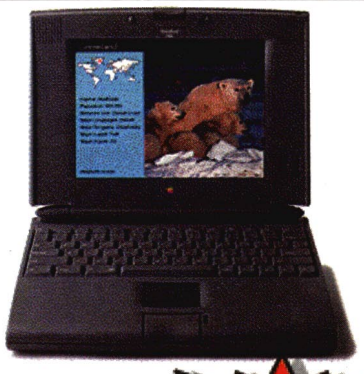

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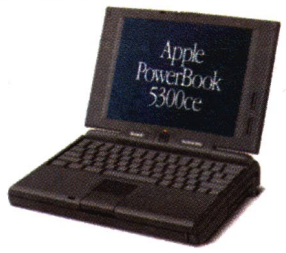

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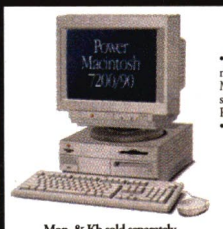

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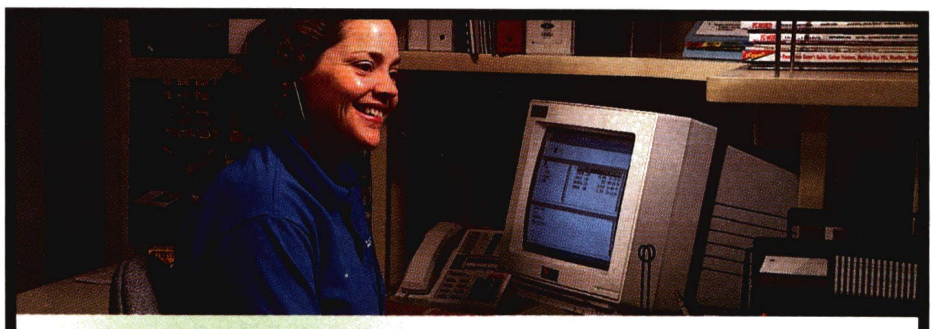

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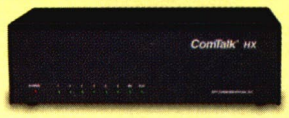

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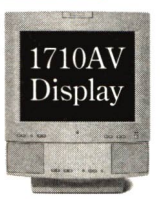

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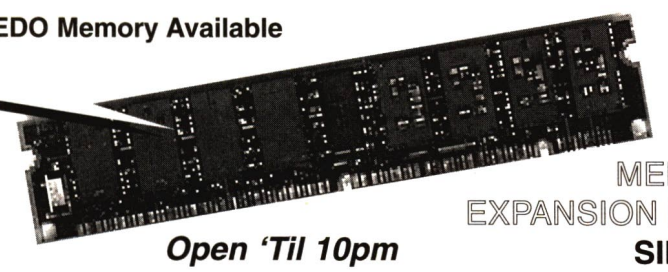

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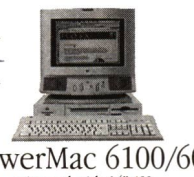

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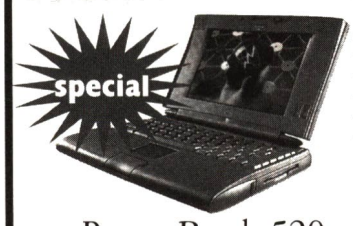

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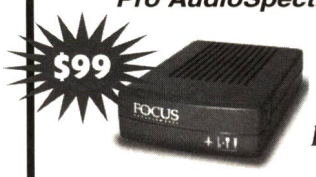

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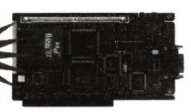

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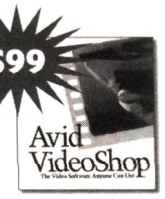

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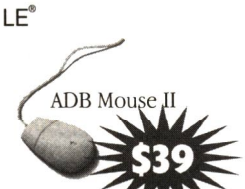

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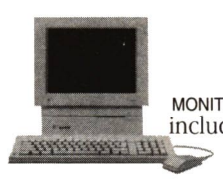

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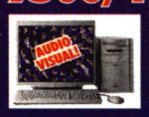

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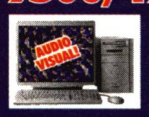

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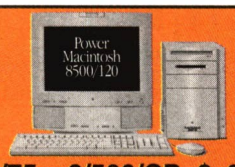

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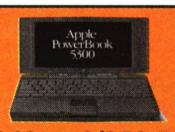

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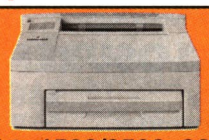

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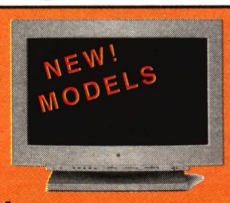

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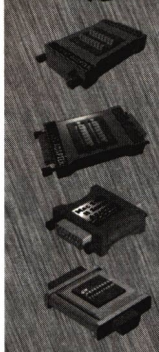

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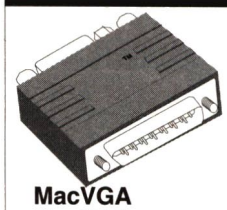

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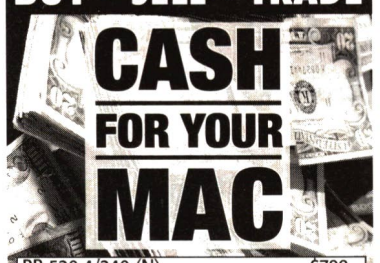

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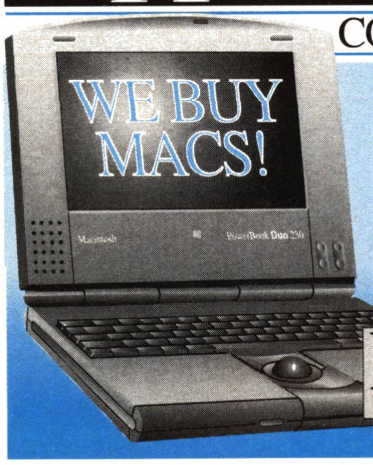

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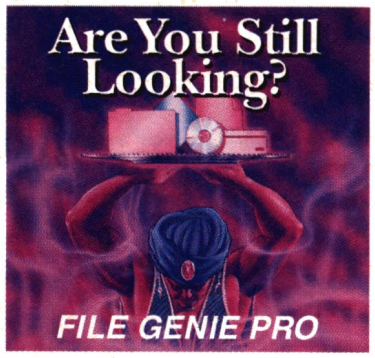

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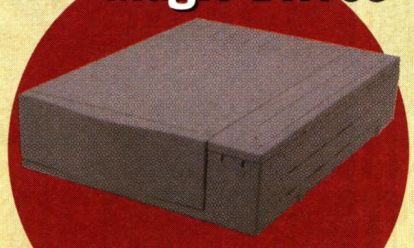
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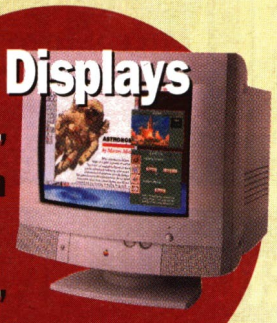
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Apple

From Page 1

tosh, Imaging, Claris Corp., Information Appliances, and Servers and Alternate Platforms — plus customer support; all have independent profit-and-loss authority. Landi, who also now oversees global sales, joined Apple in March 1995 as president of Apple Europe.

Apple Americas President Jim Buckley resigned. Rumor mills had put Buckley in the cross hairs of the coming reorganization since Amelio took the helm in February.

At May's Apple Worldwide Developers Conference in San Jose, Calif., Amelio said the company would soon segregate into eight business units organized primarily around hardware. Starting June 1, these divisions are run by new bosses, all of whom were drawn from inside the company.

The Macintosh hardware group, responsible for the vast majority of Apple revenues, is now headed by Senior Vice President Frederick Forsyth. Previously in charge of worldwide operations, Forsyth is now responsible for all desktop and portable Mac systems, as well as manufacturing and operations.

Imaging, Apple's second-largest hardware division, continues under Senior Vice President Terry Bailey. Guerrino De Luca remains president of Claris, Apple's software subsidiary.

The company's operating system, Internet and technology-research work will also be managed by their current bosses: AppleSoft Senior Vice President Ike Nassi, AppleNet Vice President Larry Tesler and Apple Fellow Don Norman, respectively. But the new and currently vacant position of chief technical officer will oversee these groups as well as Apple's quality-assurance efforts, now run by Vice President Mike Connor. AppleSoft, AppleNet and the renamed Advanced Technology Laboratories are not independent profit-and-loss centers, and Amelio will manage those divisions until a CTO is hired.

Apple's reorganization consolidates all worldwide sales groups under Senior Vice President John Floisand, who reports to COO Landi. Apple Americas' new vice president is Robin Abrams, formerly the head of Apple Asia sales.

The new Servers and Alternate Platform Products division will be managed by Senior Vice President Howard Lee; he formerly was senior vice president for Mac systems. Lee will oversee Apple's efforts with the PowerPC Platform, servers, "hybrid personal computer products" and "interactive media products," Apple said.

Landi will temporarily direct Apple's new Information Appliance Products group, which makes non-Mac products such as Newton and Pippin, along with AppleAssist, the customer service group. □

David Morgenstern contributed to this report.

Apple tools to monitor Macs

By Joanna Pearlstein

Apple this month will release a triumvirate of tools for managing networks.

The $599 Apple Network Administrator Toolkit (ANAT) will include Apple Network Assistant, a tool for managing networked Macs; Apple Users & Groups Manager, a tool for synchronizing server-user access; and a new server-based version of At Ease for Workgroups.

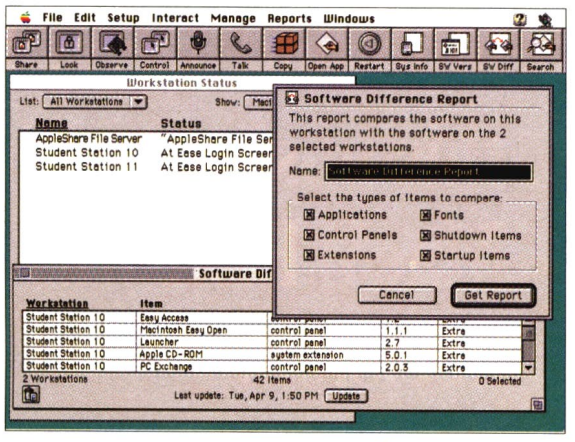
Apple Network Assistant will offer software distribution, screen sharing and remote-control features. Administrators will be able to poll systems about installed hardware and software, then let them install or delete specific files and applications.

A screen-sharing feature, similar to that of Farallon Communications Inc.'s Timbuktu, will let administrators view up to four client screens simultaneously.

The Users & Groups Manager is designed to help administrators synchronize user privileges on AppleShare, At Ease for Workgroups and SoftArc Inc. FirstClass servers.

At Ease for Workgroups 4.0 completes the product's migration from a personal security application to a server-based tool for managing the security of systems used by many people.

With Version 4.0, the first Power Mac-native iteration, administrators will be able to control users' access to network resources and create an application and document set for each user, independent of individual workstations. For example, when a user logs on from any station, the files pertinent to him or her will be downloaded from the server. Each user's application and Internet preferences will be maintained and sent to the client workstation upon log-in, Apple said.



Apple's new Network Assistant can examine software installed on any Mac on the network; administrators can selectively delete or add files from these machines remotely.

ANAT costs $599 for support of 10 users and $499 as an upgrade for At Ease for Workgroups. It will be distributed by Claris Corp.

Claris Corp. of Santa Clara, Calif., can be reached at (408) 727-8227 or (800) 293-6617; http://www.claris.com. □

FlashPix snapshot

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FlashPix

From Page 1

ones and avoid memory overhead usually involved when displaying images, sources said.

Based in part on Live Picture's IVUE hierarchical imaging technology, FlashPix will create a sequence of images in varying resolutions, down to an indexed tile of 64 by 64 pixels. Sources said this scheme will let an application use the most efficient resolution for display, rather than load an entire high-resolution image into RAM. FlashPix will reportedly run on a 68030 or faster CPU.

Stored with the set of images will be file ownership data; color-management information; and "views," which are small scripts for image edits. The format will use a structured-storage architecture from Microsoft and will support OLE and OpenDoc applications, sources said. Developers will be able to add proprietary functions to the format.

In addition, HP, Kodak and Microsoft reportedly agreed on a standard RGB color space that will reduce the complexity of color management. Kodak contributed its YCC-to-RGB color-space conversion technology as well as advanced algorithms that can blur and sharpen images in real time. The format will also support an alpha channel, sources said.

As an option, FlashPix will offer a library for JPEG compression, reportedly from HP.

According to sources, FlashPix will be a free specification with an open file format. In September, the companies will release a reference implementation that includes a software tool kit and API.

In addition, the format is expected to boost Internet graphics capabilities, sources said. FlashPix will speed online picture editing and enable Web users to pan, zoom and access high-resolution images quickly.

At Comdex, Live Picture will reportedly demonstrate a version of its Mac-based image-editing and composing program working with FlashPix. "It's broad enough that it will support applications across the spectrum," a source said.

In addition to graphics software, support for the technology will be incorporated into a variety of peripherals, including scanners, digital cameras and printers, sources said.

Kodak reportedly plans to build FlashPix support into all of its digital imaging products. Sources said the company will merge FlashPix with its Photo CD format.

"It's intended to enable low-end consumer applications, it's not intended to supplant existing format," said one source familiar with FlashPix. □

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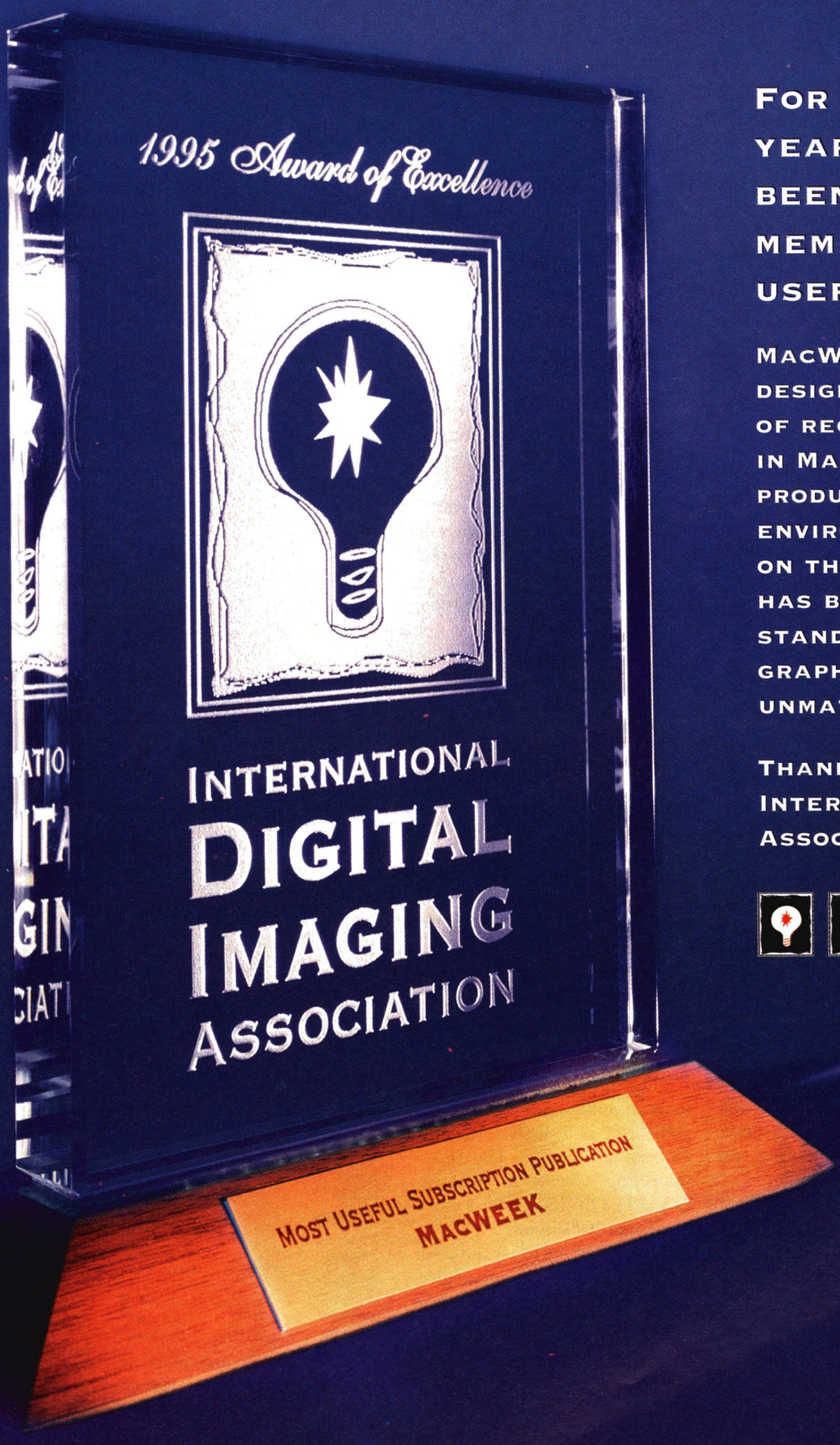

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MacWEEK

Metrowerks to bring ActiveX tools to Mac

Microsoft to use CodeWarrior

By Clifford Colby

Metrowerks Inc. and Microsoft Corp. signed a deal in May to work together deploying Java and ActiveX technologies on the Mac.

As part of the deal, Metrowerks of Austin, Texas, will include support for Microsoft's ActiveX — multimedia architecture for the Internet (see 03.25.96, Page 22) — in an upcoming version of CodeWarrior. Metrowerks said it will also develop Java-based technologies for use in Microsoft's Internet Explorer Web browser.

Redmond, Wash.-based Microsoft, in turn, will use CodeWarrior to develop future versions of Internet Explorer for the Mac and will incorporate Metrowerks' Java Virtual Machine into the Mac version of its Web browser. Microsoft said Internet Explorer 3.0 for the Mac, due later this year, will feature Java integrated with ActiveX.

In other news, Microsoft said it is on target for a summer release of the Mac version of Visual Basic Script, a scripting language that will help developers create Web content (see 12.11.95, Page 4). The company said Visual Basic Script for the Mac will let users create interactions among HTML pages, Java applets and ActiveX Controls. Developers will be able to download the tool from the Microsoft Web site at http://www.microsoft.com/devonly. □

Visual C++ price slashed

Microsoft Corp. announced last week it will offer developers a chance to upgrade inexpensively to its Visual C++ 4.0 Cross-Development Edition for Macintosh.

Starting June 14, users of any Mac or Microsoft Windows C or C++ development environment or an existing cross-platform toolkit can purchase Visual C++ for the Mac for $199, the company said. The environment, which lets users who develop on Windows 95 and Windows NT machines create Mac applications, normally costs $1,999, with an upgrade from a previous version going for $499.

Microsoft Corp. of Redmond, Wash., can be reached at (206) 936-8080 or (800) 719-5577; fax (206) 936-7329; msvc@microsoft.com; http://www.microsoft.com. □

Corel

From Page 1

on WordPerfect, Quattro Pro and the other productivity applications in the Corel Office line of product suites for Windows.

Corel said Office JV will be available as a public beta by year's end; pricing is expected to be similar to what the company charges for its existing productivity suites. Corel Office Professional is priced at $695, and WordPerfect Suite costs $395.

Rather than being one large application, Office JV will be a series of Java classes that share the same user interface and documents. This arrangement will let Corel and third parties easily extend Office JV's functionality by integrating other Java applets.

Corel said it plans to deliver the suite over the Internet. Thanks to Java's inherent networking capabilities, Corel will be able to deliver new features and functions to users as they become available without having to upgrade the entire package. Being Java-based will also let the suite be deployed cross-platform to not only desktop machines but to other Java-enabled devices such as set-top boxes.

Corel also plans to link its existing applications to Java through Barista, a new publishing technology that has its own file format and set of APIs. According to Corel, the APIs will let users export documents from any Corel application to an HTML page with a Java text file inside it.

The Barista APIs will be made available free to developers this summer. Corel said it is also working on a PostScript-to-Barista filter.

Corel said it will add Barista to CorelDraw for the Mac in a release expected in August. Barista will also be part of WordPerfect 3.6 for the Mac, due in the fall.

While Office JV and Barista are not expected to have an impact on the productivity software market until 1997, conference attendees said Java could make Corel more of a significant competitor.

"If it's successful, it turns Windows into a nonfactor," said Walter Gillett, a software engineer at The Math Works Inc., a software development house in Natick, Mass. "For the Mac in particular this is very exciting, because it puts it back on an even playing field," he said.

Corel Corp. of Ottawa is at (613) 728-8200 or (800) 772-6735; fax (613) 761-9176; custserv@corel.com; http://www.corel.com. □

Truevision

From Page 1

their Mac's internal audio. The Bravado 1000 will use a bus-mastering architecture to ensure synchronization of audio and video and fast throughput even on internal Mac hard drives, Truevision said. Composite and S-video can be input and output at NTSC and PAL (European) resolutions.

Truevision recommends that Macs have 16 to 32 Mbytes of RAM installed to use the board and Premiere efficiently.

"For a thousand bucks, it's a pretty great product," said beta tester Matthew Payne, owner of Payne Media Inc. of Bellevue, Wash. Payne's company creates advertisements for local and regional television, corporate sales videos, and training tapes and primarily uses the Targa 2000, Truevision's $4,995 higher-end video-editing system.

"Obviously the Bravado's not a broadcast product, but it's good for visualizing a project," Payne said. "I found it had a data rate of about 2.5 Mbytes per second. Clients are happy to look at that all day."

Bravado 1000's closest competitor is the $999 miroMotion DC20 from miro Computer Products Inc. of Palo Alto, Calif. The PCI-based miroMotion DC20 also offers M-JPEG but ships with a limited version of Premiere.

"The miroMotion is very easy to set up, and it's usable by a larger audience," said analyst Richard Doherty, director of The Envisioneering Group in Seaford, N.Y. "The Bravado 1000 is more of a Targa 2000 junior.

"If you're trying to expand your shop, the Bravado's going to give you a lot of what you'd get from a Targa 2000," Doherty said.

Truevision Inc. of Santa Clara, Calif., is at (408) 562-4200 or (800) 729-2656; fax (408) 562-4065; http://www.truevision.com. □

Kodak

From Page 1

uses a rectangular-pixel video CCD (charge-coupled device) to capture 24-bit images. Users must wait about five seconds between exposures, according to the company.

The low-cost camera is also lean on storage. Its 1 Mbyte of RAM can store either eight images at 493 by 373 pixels or 16 images at 320 by 240 pixels. All images are uncompressed and 24-bit. It connects to a Mac or Microsoft Windows system via a serial cable.

The DC-20 also ships with a consumer-slanted bundle of software. In addition to a Twain-compliant Adobe Photoshop plug-in, it includes MetaTools Inc.'s Kai's Power Goo, which lets users twist and morph images (see 04.08.96, Page 4).

Also included are PictureWorks Technology Inc.'s Photo-Enhancer Special Fun Edition software that can enhance and place images in greeting cards, and InMedia Presentation Inc.'s Slides & Sound slide-show software.

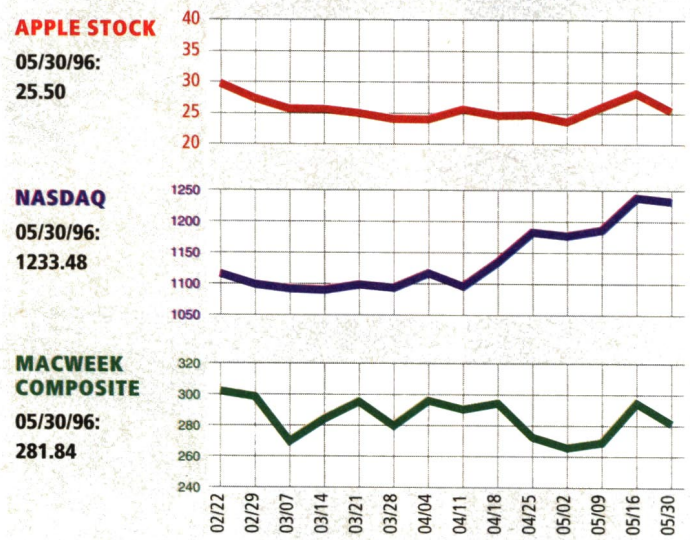
In addition, a fourth software product, Kodak's Picture Postcard, will be available free from Kodak's Web site. It will let users download images directly into a postcard-style form and add text messages, which can then be sent via e-mail. Recipients must use Picture Postcard to view the image.

The consumer software and the low street price are a departure for Kodak's digital science division: Its previous low-end cameras were priced from $600 to $1,000.

"It's a nifty little toy," InfoTrends' Holch said. "Consumers will be fairly excited to see their images on screen, but if they print it out it's not going to look anything like a photograph. The trick will be getting consumers to appreciate this in the digital realm, not just in printed form."

Eastman Kodak Co. of Rochester, N.Y., can be reached at (716) 726-7260 or (800) 235-6325; fax-back (800) 508-1531; http://www.kodak.com. □

StockWatch



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MacWEEK Composite*	281.84	-20.5
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CE Software	2.50	0.00
Fractal	15.50	0.50
Graphsoft	7.63	2.13
Insignia	10.25	0.63
Intuit	49.63	-3.38
Macromedia	41.75	-2.25
Microsoft	118.13	-0.38
Novell	14.25	-1.13
Oracle	33.25	-0.63
Symantec	15.88	-1.13
STORAGE		
Iomega	45.63	-5.63
Pinnacle	10.00	1.13
Quantum	23.94	-0.69
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Intel	71.50	0.69
Motorola	65.63	0.75
SGI	27.75	-0.63
NASDAQ	1233.48	-15.17

**The MacWEEK Composite is calculated by adding the stock prices of the following companies: Apple, Adobe, Asanté, Caere, CE Software, Global Village, Intuit, Macromedia, Radius, Shiva, SyQuest and Truevision. Source: Nordby International Inc.*

Help

From Page 1

to delegate tasks to Mac OS 8's help system. For example, a user will be able to schedule a backup before the system is shut down or receive notification when e-mail from a specific person arrives.

In addition, Mac OS 8 will offer suggestions on how to perform tasks. Apple will do this through the Tips Manager, which will watch a user's actions and suggest shortcuts for performing those actions. So if a user always selects Bold from a menu to style text, the Tips Manager could bring up a dialog box suggesting that the user could also use a Command-key shortcut to style text. The Tips dialog box will also display a list of tips.

Pumping up balloon help, Apple intends to let users reach it from places other than the menu bar. Users will no longer have to turn on the feature to get help. Instead, they will be able to click on an object while pressing a modifier key to see context-specific information.

Apple will also expand the capabilities of Apple Guide in Mac OS 8. Apple said Version 3.0 will include an enhanced search mechanism for hunting down titles and contents of guides. Users will be able to enter and save text in Apple Guide as well as print summaries of guides.

In addition, Apple plans to detach Coach Marks from Apple Guide and give developers greater control over the marks, letting them set such characteristics as the color and size of the marks.

Apple will also make most assistance technologies available through a new Help menu, which will replace the current Guide menu and move toward the center of the Menu bar.

In addition, Apple plans to link error messages to Mac OS 8's help system, so users can move from an error dialog box directly to help. In the upcoming OS, error messages themselves will become less cryptic and will display less-technical descriptions of errors.

Apple also intends to help users make sense of the jumble of files and folders that make up the current System folder. Users will be able to better manage items in the System folder through the new Feature Manager, which will capture and store in a database information on items in the folder. Instead of users diving into the System folder to access its contents, the new feature will organize and present items and information in a window. Similar items and information — multimedia, for example — will be grouped together. □

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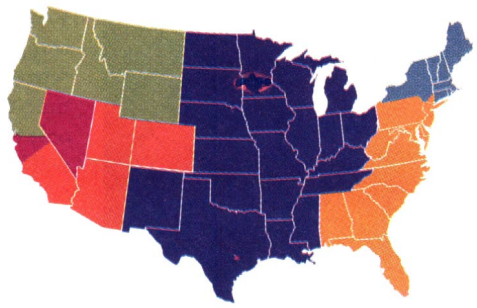

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ZDNet On the bench
Wondering how the new PCI Macs and Power Computing's PowerCenter machines stack up? Wonder no more. You can grab the benchmarks from MacWEEK Labs at http://www.zdnet.com/macweek/results.html or on CompuServe.

Software bonanza
MacUser's software repository, Software Central, is up and running. Stop by and pick up a copy of HoverBar or RAM Handler, just two of the hundreds of titles available at http://www.zdnet.com/macuser/software/.

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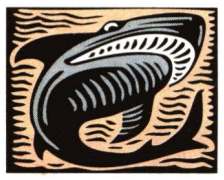

The happiest place on Earth

The Knife's inner child is no Horatio. Not an intrepid English cabin boy, plucky Americana booster nor failed Danish philosopher he, this runt still nurses psychic bruises from the slings and arrows of an all too delinquent upbringing. So, during that awkward time between the maternal May and paternal June Hallmark holidays, the Knife went south to try to blunt his chicken-wire-mother memories. South to Disneyland.

After enjoying the scenery along aromatic Highway 5, the Knife gave his dirty, overheated VW Thing an out of the way rest in the overheated 'burbs of Ventura, Calif. The city fathers there were abuzz with the news that the suspect Canadians at Corel have designs on reviving the Mac version of the city's honorary DTP package. Scouring his own recovered memories of Ventura Publisher, the Knife decided that, indeed, three years was just about the right gestation period for a product rebirth.

Back on the gridlocked path to puerile rejuvenation in Anaheim, he mused that the Macintosh remains a sunny destination resort for page-layout tools, increasingly those of the Web variety. A quick chat with some off-duty Pirates of the Caribbean corroborated this eternal truth by noting that Berkeley Systems is back on the Mac, jack, developing a consumer Web editor based on Apple Guide. Yo ho!

It's a small world after all

The Knife endured an unusual frisking applied by the beardless Magic Kingdom centurions with thoughts of life's unintended consequences. Consider the time Apple decided to contract out programming for a future, free ResEdit 3.0 — back in the days before "We won't compete with third-party products (like Mathemaesthetics' Resourcerer)" became a company theme song — little did they know the ResEdit deal would provide seed money for the Cinderfellas at San Andreas Systems to write Loma Prieta, the forthcoming PageMill killer. Apparently the Web apprentices did know something about editing resources.

There ain't nothin' like Notre Dame

Bent, abused and misunderstood Radius appears ready to wring out a few more crowns from its technology coffers by selling off the PressView series of displays. The Esmarelda for Radius' color-calibrating Übermonitors is said to be Matsushita.

Another example of a company dropping a product from its heights is kindly provided by the hunchbacks at TimeSlips. The company preferred by nine out of 10 anal retentives is planning to abandon its Mac time-tracking software and seek happiness only under Windows. But Casady & Greene will leap into the breach with a new product called TimeSlice, so Mac users can continue to bill for life's precious moments.

Some details of your busy, busy life are perhaps better left unrecorded in this digital age. That's the lesson being doled out to a San Jose, Calif., drug dealer whose Newton MessagePad was recovered by local police. The PDA's contents were then kindly cracked by Sheriff Woody wannabes at Apple.

Heffalumping toward Jerusalem

While Feng Shui-ing a choice spot from which to view the Electric Parade's long march into oblivion, the Knife took time to quiz Pooh on the Tao of Apple's Digital Video Disc plans. Silly old bear! He revealed that Apple plans to ship an external DVD player toward the end of 1996, before supplies of internal drives are available.

The Mac peripheral cum home-theater component will have S-VHS outputs so even the most feckless could connect it to a TV for digital movie watching. The box, said Pooh, looks to be a honey of a deal at $500 to $700. □

Dr. Gil, you've lost $800 million and reorganized Apple for the umpteenth time! What will you do now? For a travel mug, call the Knife at (415) 243-3544; fax (415) 243-3651; mac_the_knife@macweek.com.

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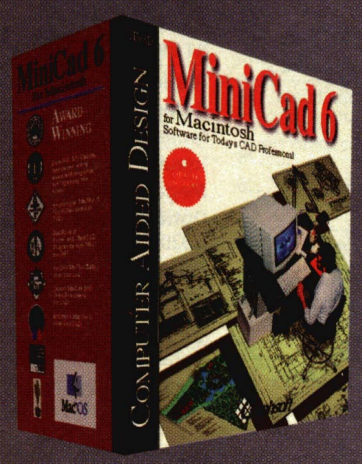

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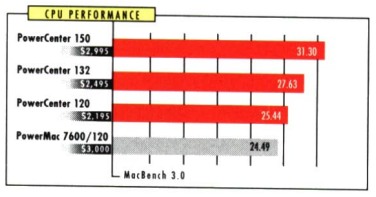

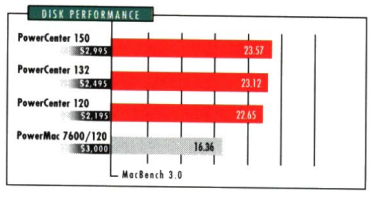

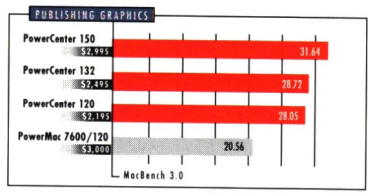

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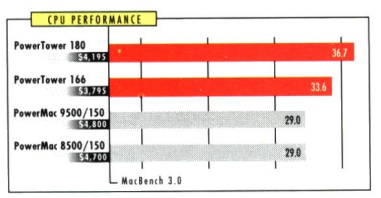

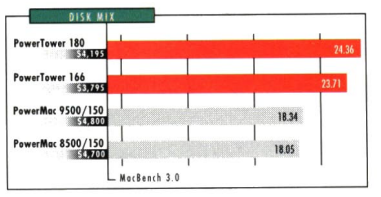

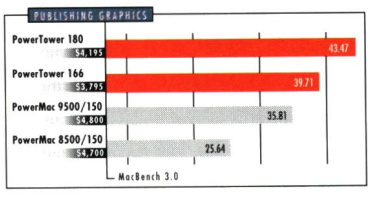

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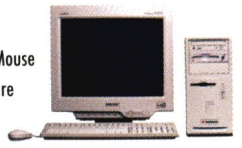

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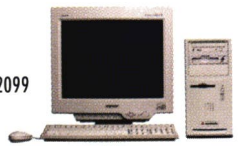

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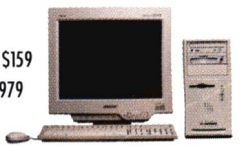

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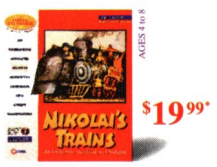

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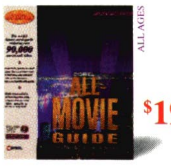

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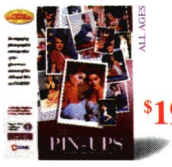

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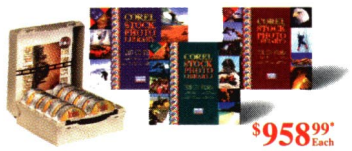

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